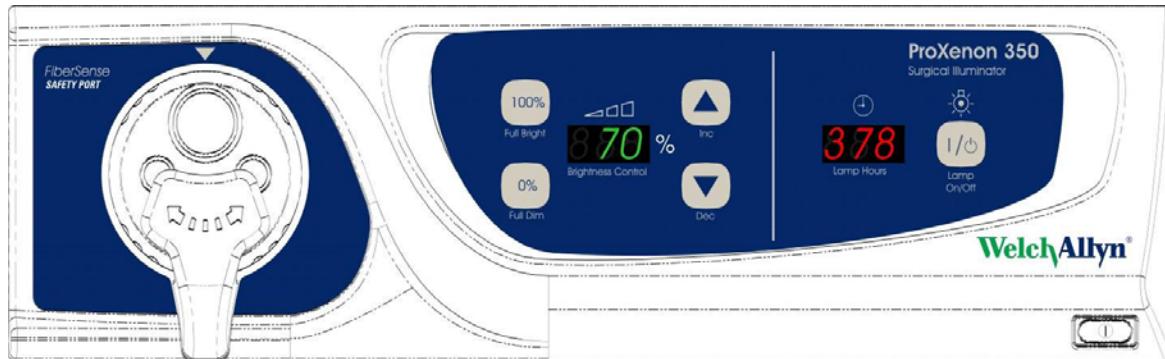


ProXenon 350 Surgical Illuminator



Service Manual

WelchAllyn®

Advancing Frontline Care™

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Introduction

General Information

The Welch Allyn ProXenon 350 Surgical Illuminator is designed for use with the Welch Allyn ProXenon Headlight and Fiber system. It will accept fiberoptic light guides for Wolf, Storz, Olympus, and ACMI instrumentation. The ProXenon 350 Surgical Illuminator uses a Welch Allyn high-intensity, narrow-beam, rugged, xenon, short arc lamp with a fixed internal reflector to produce a uniform profile beam.

Technical Help Information

Only fully trained and properly equipped personnel should perform all service and repairs, using genuine replacement parts and correct procedures. Failure to do so will invalidate the product warranty and could compromise instrument safety and performance.

Read and understand all safety warnings and service notes printed in this Service Manual and the Operating Manual. If there is any doubt about any precaution or procedure, for phone help, or to order additional copies of ProXenon 350 Surgical Illuminator Manuals, contact:

Customer Service

Welch Allyn, Inc.
4619 Jordan Road, PO Box 187
Skaneateles Falls, NY 13153-0187 USA
Telephone: 866-801-8428 or 315-685-2993
Fax: 315-685-2854

When calling, refer to the model number shown on the data label, found on the back of the system. Technical assistance is contained in "Basic Troubleshooting" on page 13 of this manual.

Service Center

If you have an equipment problem that you cannot resolve, you may call the Welch Allyn Service Center nearest you for assistance. Technical service support is available by telephone on normal business days at the phone numbers listed below. If you are advised to return a product to Welch Allyn for repair or routine maintenance, schedule the repair with the service center nearest you.

Before returning a product for repair you must obtain authorization from Welch Allyn. An RMA (Return Merchandise Authorization) number will be given to you by our service personnel. Be sure to note this number on the outside of your shipping box. Returns without an RMA number will not be accepted for delivery.

USA Customers

Welch Allyn, Inc., U.S.A.
4619 Jordan Road
Skaneateles Falls, NY 13153-0187
Telephone: 1 866-801-8428
Fax: 1 315 685 2854

Canada Customers

Welch Allyn, Ltd., Canada
160 Matheson Blvd. E., Unit #2
Mississauga, Ontario, Canada L4Z 1V4
Tel: 1 905 890 0004 or 1 800 561 8797
Fax: 1 905 890 0008

International Customers

Welch Allyn, GmbH & Co KG
Zollerstrasse 2-4
72417 Jungingen, Germany
Telephone: 0 7477 927170
Fax: 0 7477 927190

Welch Allyn, Ltd., Singapore

10 Hoa Chiang Road
#19-03/04
Keppel Towers
Singapore 089315
Tel: 6419 8100
Fax: 6291 5780

Welch Allyn, Ltd., Australia

Unit 5, 38-46 South Street
Rydalmer NSW 2116
Australia
Telephone: 0 2 9638 3000
Fax: 0 2 9638 3500

Welch Allyn, China

Unit 1101 Central Plaza
No. 227 HuangPi North Rd.
Shanghai, China 200003
Tel: 0 21 6327 9631
Fax: 0 21 6327 9632

Welch Allyn Japan K.K.

6F Kinseisha Bldg.
3-15 Kandanishikicho
Chiyoda-ku, Tokyo 101-0054
Japan
Telephone: 0 3 3219 071
Fax: 0 3 3219 0074

Welch Allyn Latin American Customer

11300 N.W. 41st Street
Miami, FL 33178 USA
Tel: 1 305 669 9003
Fax: 1 305 669 1971

Warranty

Welch Allyn warrants the ProXenon 350 Surgical Illuminator when new, to be free of defects in material and workmanship and to perform in accordance with manufacturer's specifications when subject to normal use and service for a period of two years from date of purchase from Welch Allyn or an authorized agent. Welch Allyn will either repair or replace any components found to be defective or at variance from manufacturer's specifications within this time at no cost to the customer. It shall be the purchaser's responsibility to return the instrument to the authorized distributor, agent, or service representative.

Welch Allyn warrants the ProXenon 350 lamp to be free of defects in materials and workmanship. This warranty does not cover the ProXenon 350 lamp for breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or from improper maintenance, service, or cleaning procedures.

This warranty is void if the instrument is not used in accordance with manufacturer's recommendations or if required service is performed by other than Welch Allyn or an authorized agent. Purchase date determines warranty requirements. No other express or implied warranty is given.

Symbols

The following symbols are associated with the ProXenon 350 Surgical Illuminator.

Safety Symbols



Identifies information within the manual to avoid injury.



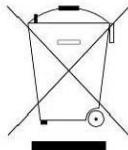
Caution: consult accompanying documents.



Alternating current



Type BF Equipment



Recycling Symbol – Do not dispose of this product as unsorted municipal waste. Prepare this product for reuse or separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE). If this product is contaminated, this directive does not apply. See

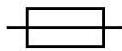
www.welchallyn.com/weee or contact Welch Allyn Customer Service.



Identifies information within the manual to avoid equipment failure.



Storage Humidity



Fuse



Dangerous Voltage



Equipotentiality



Attention, Hot Surface

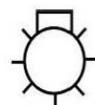


IPX0 Equipment is not protected against the ingress of liquid

Transport Temperature



Consult accompanying documents.



Lamp

Button Symbols



Power ON/OFF



Lamp ON/OFF

100%

Maximum Light intensity setting

0%

Minimum Light Intensity Setting.



Light Intensity Setting



Increases light intensity in 10% increments.



Decreases light intensity in 10% increments.



Lamp Hours

Agency Symbols



UL 60601-1, IEC 60601-1, CAN/CSA STD C22.2 NO.601.1/M90



EMC Framework of Australia



The CE mark on this product indicates that it has been tested to and conforms with the provisions noted within the 93/42/EEC Medical Device Directive.

Authorized European Representative Address:

European Regulatory Manager

Welch Allyn, Ltd.

Navan Business Park

Dublin Road

Navan, County Meath,

Republic of Ireland

Telephone: +353 46 90 67700

Fax: +353 46 90 67755

Safety Warnings and Cautions

Familiarize all operating personnel with the general safety information in this summary. Specific warnings and cautions are also found throughout this manual. Such specific warnings and cautions may not appear in this summary.

Warnings:

A warning statement in this manual identifies a condition or practice, which if not corrected or discontinued immediately, could lead to injury, illness, or death.



WARNING Only qualified personnel should use the ProXenon 350 Surgical Illuminator.

WARNING Before operating the ProXenon 350 Surgical Illuminator, read the Directions for Use. The ProXenon 350 Surgical Illuminator is a source of high electrical voltage, intense light, and heat. When used properly and with normal precautions, the ProXenon 350 Surgical Illuminator is a safe and effective light source.

WARNING RISK OF FIRE. Not suitable for use in the presence of a Flammable Anesthetic Mixture.

WARNING RISK OF SHOCK. The cover of the ProXenon 350 Surgical Illuminator should never be removed. Electrical shock hazard due to high internal voltage. There are no user serviceable parts inside this surgical illuminator except for the lamp and fuse which are accessible without removing the cover. Refer all service to Welch Allyn.

WARNING RISK OF SHOCK. Disconnect power cord before servicing.



WARNING This product comes with a power cord that is intended for use only with this product. The power cord has not been tested and approved for use with other products that may have the same power connectors. If you cannot locate the original power cord, please contact Welch Allyn to obtain replacement parts.

WARNING Before connecting the ProXenon 350 Surgical Illuminator to AC power, verify that the voltage to be applied is within the range specified on the identification label.

WARNING Extremely high energy light. It is the user's responsibility to check the specifications of any device attached to the ProXenon 350 Surgical Illuminator to verify that it can transmit the intense light output without generating high temperatures and heat build-up in the device that can cause serious burns.

WARNING Use only non-electrically conductive fiberoptic cables. Use of conductive fiber optic cables will compromise the safety and effectiveness of this instrument.

WARNING High intensity light can cause burns to tissue even if the tip of the fiber optic cable or attached terminal device is cool. Burns are caused by the absorption of light by tissue and the subsequent conversion of that light energy into thermal energy. Full-thickness burns can be caused by prolonged exposure to concentrated light energy. Anesthetized patients and poorly perfused tissues are particularly susceptible to burn injuries via this mechanism. There is serious risk of igniting fires if energized fiberoptic cables are placed on flammable materials. **IT IS THE USER'S RESPONSIBILITY TO DETERMINE AND MAINTAIN THE MINIMUM SAFE DISTANCE BETWEEN THE END OF THE ENERGIZED FIBEROPTIC CABLE AND ANY LIVING TISSUE OR FLAMMABLE MATERIAL.**

WARNING Intense light emitted from the ProXenon 350 Surgical Illuminator can cause permanent eye damage if viewed directly with unprotected eye. The risk of injury is reduced by using the minimum level of illumination necessary, by minimizing exposure time, and by avoiding close stationary viewing.

WARNING There is a risk of injury to tissue from exposure to the intense illumination. Using light intensity settings in excess of that required for good visualization contributes to tissue warming and should be avoided.

WARNING Always have back-up light source available in case of failure during a procedure.

WARNING The lamp module and nearby structures become **VERY HOT**, even after brief operation. To prevent burns, turn off the ProXenon 350 Surgical Illuminator and allow it to cool for 10 minutes prior to removing lamp module.



WARNING When the ProXenon 350 Surgical Illuminator is on, never disconnect the fiberoptic cable from the terminal device. High intensity light from the end of the fiberoptic cable can ignite flammable materials (for example, drapes) or cause burns to tissue.

WARNING Replace fuses as marked. See Fuse Replacement Section.

WARNING Do not use for neonate transillumination. Erythema may result.

WARNING Ensure that active port of the Four-Port Turret is positioned correctly and the fiberoptic cable is fully seated.

WARNING The ProXenon 350 Light Source has been evaluated for use as a Headlight System light source only. The safety and effectiveness of this light source for endoscopic use has not yet been evaluated.

Cautions:

A caution statement in this manual identifies a condition or practice, which if not corrected or discontinued immediately, could lead to equipment failure, equipment damage, or data loss.



Caution Rx Only: United States Federal Law restricts this device to sale by or on the order of a health care practitioner.

Caution Do not touch or change lamp module immediately after operation. Allow lamp to cool 10 minutes.

Caution Since the ProXenon 350 Surgical Illuminator uses a custom lamp module, always have a spare lamp module available for replacement. Use only Welch Allyn replacement lamp module REF 90209.

Caution To prevent damage to the ProXenon 350 Surgical Illuminator, prevent overheating, and maintain the warranty, replace lamp only with the Welch Allyn REF 90209 lamp module. Read instructions before replacing lamp module.

Caution Grounding reliability is achieved only when connected to hospital-use or hospital-grade receptacles. Inspect electrical plug and cord routinely. Do not use if damaged.

Caution PROVIDE VENTILATION TO PREVENT OVERHEATING. Keep cooling vents free from obstructions. Do not cover or drape the ProXenon 350 Surgical Illuminator. Provide a 6 inch (15.24 cm) distance between the ProXenon 350 Surgical Illuminator and any solid objects. Use the ProXenon 350 Surgical Illuminator only when it is in the horizontal position.



Caution Do not use the turret as a light attenuator or operate with the turret misaligned with the light port.

Caution The metal end of the fiberoptic cable gets hot during use. Allow to cool before touching.

Caution IPXØ – Equipment not protected against the ingress of water. Do not use or store liquids above or on the surgical illuminator.

Caution The ProXenon 350 Surgical Illuminator produces very high levels of visible light and is optimized to power the Welch Allyn ProXenon Headlight and Fiber. When using endoscopic or surgical headlight fibers without canes, lenses, or fusing at the input end, irreparable fiber damage will result when the ProXenon 350 Surgical Illuminator intensity level is set above 70% and total accumulated lamp hours are 100 hours or less.

Caution When using fibers other than the 902 Series ProXenon Headlight fiber, do not exceed 70% intensity setting when total accumulated lamp hours are less than 100.

Caution Do not operate the ProXenon 350 Surgical Illuminator without a lamp module installed.

Service

Cleaning Instructions



Caution Do not expose the ProXenon 350 Surgical Illuminator to autoclaving or any cleaning/sterilization process involving excessive heat or moisture. This could lead to damage and void the warranty.

Caution To reduce risk of electric shock, do not remove cover. Refer servicing to qualified personnel. No cleaning of any interior components is required.

Caution Use hospital approved disinfectants (e.g., 10% Clorox/90% water solution).

Caution Never introduce any liquid directly to the surface of the ProXenon 350 Surgical Illuminator.

Wipe the surface of the ProXenon 350 Surgical Illuminator periodically with a damp, soft cloth using isopropyl alcohol or a mild detergent solution to remove surface contamination. Allow the instrument to dry before use.

Basic Troubleshooting

No power.	Power cord is not plugged into receptacle at the instrument or into the hospital grade outlet.	Plug in power cord.
	ON/OFF button is off.	Press the Main ON/OFF button.
	Fuse is blown.	Replace fuse. See Fuse Replacement page 14.
	Lamp door is not closed tightly.	Close lamp door completely.
	Lamp module is installed incorrectly.	Re-install lamp module correctly. See Lamp Care and Replacement page 15.
	Internal power supply not operating	Return the ProXenon 350 Surgical Illuminator to Welch Allyn. Contact your local Welch Allyn Technical Service Center listed on page 5.
No light output.	Lamp is at the end of service.	Replace lamp module.
	Lamp module is installed incorrectly.	Re-install lamp module correctly. See Lamp Care and Replacement page 15.
	Lamp door is not closed tightly.	Close lamp door completely.
	Fiberoptic cable not connected.	Shutter is not attenuated. Connect fiberoptic cable.
	Fiberoptic cable is not fully seated.	Push the fiberoptic cable in completely.
	Fiberoptic cable is worn or damaged.	Replace fiberoptic cable.
	Turret misaligned.	Align Turret correctly.

Xenon lamp flickers or dims.	Lamp is nearing end of service.	Replace lamp module. See Lamp Care and Replacement page 15.
Field of view is dim.	Controls set incorrectly.	Adjust Full Bright or Full Dim controls appropriately.
	Lamp module is installed incorrectly.	Re-install lamp module correctly. See Lamp Care and Replacement page 15.
Turns off after a few minutes of operation.	Fiberoptic cable is worn or damaged.	Replace fiberoptic cable.
	Turret is misaligned.	Align Turret correctly.
	Obstructed air intake; overheating causes thermal switch to trip.	Allow instrument to cool (10 minutes). Remove obstruction(s).
	Fan not running; overheating causes thermal switch to trip.	Contact your local Welch Allyn Technical Service Center listed on page 5.

Tools Required

- Screwdriver, flat blade (medium)
- Screwdriver, Phillips Head
- Ratcheting wrench and Phillips bit set
- Torque wrench (4-7 in-lb)
- Allen wrench set – English
- Nut driver set – English
- Nut driver set – Metric
- Isopropyl Alcohol
- Loctite 242

Component Removal

Note. The removal sections beginning with the Lamp Care and Replacement are in order from start to finish. Actions mentioned in previous sections are not repeated, only additional steps are listed. It is recommended that the lamp be removed prior to removing the cover and servicing internal components.

Note. Component replacement is accomplished by reversing the process described by the removal.

Fuse Replacement



WARNING RISK OF SHOCK. Disconnect power cord before servicing.

- 1 Turn the ProXenon 350 Surgical Illuminator off and unplug the power cord.
- 2 Remove the fuse cover, located below the three-prong power connector.
Carefully pull out the cover using a flat blade screwdriver – Figure 1.
- 3 Replace the blown fuse(s) with the same size and rating (6.3A time delay :
T6.3A, 250V AC fuses, size 5 x 20mm)
- 4 Re-install the fuse cover.
- 5 Re-connect the power cord.
- 6 Press the **Power** button to apply power until a “click” is heard and power symbol illuminates.

Note If the ProXenon 350 Surgical Illuminator fails to operate properly again, contact Welch Allyn for repair (listed on page 5)

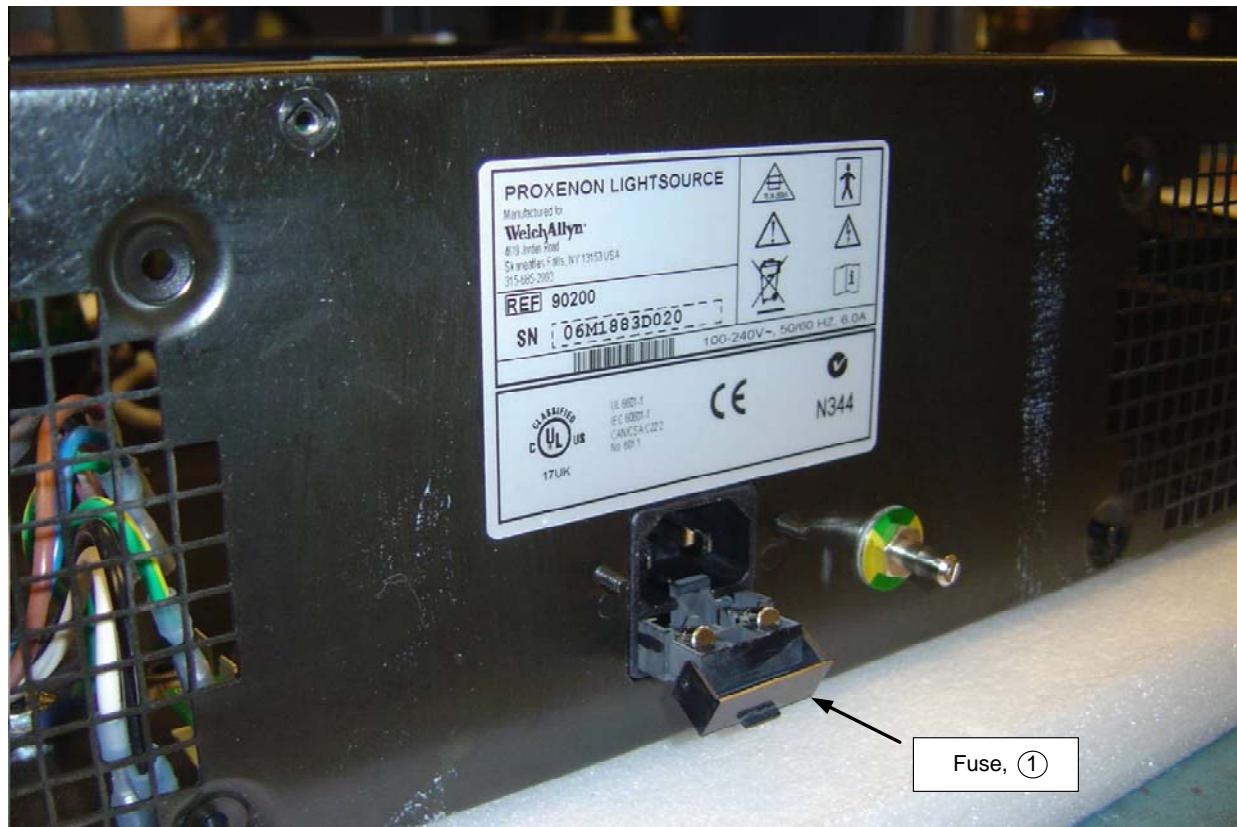


Figure 1

Door Latch & Interlock Switch Spring To Install the Interlock Switch Spring:

- 1 Turn the ProXenon 350 Surgical Illuminator lamp off, insuring continuous fan operation .
- 2 Wait 10 minutes for the lamp to cool.
- 3 Turn the ProXenon 350 Surgical Illuminator off and unplug the power cord.
- 4 Unlatch and open the access door located on the side of the ProXenon 350 Surgical Illuminator – Figure 2.
- 5 Loosen M4 screw and install Interlock Switch Spring on bottom edge of latch cutout. Slide spring against door support – Figure 3.
- 6 Reattach latch bracket, add 1 drop of Loctite 242 to end of screw, and tighten screw. Torque screw to 5 ± 1 in-lb.

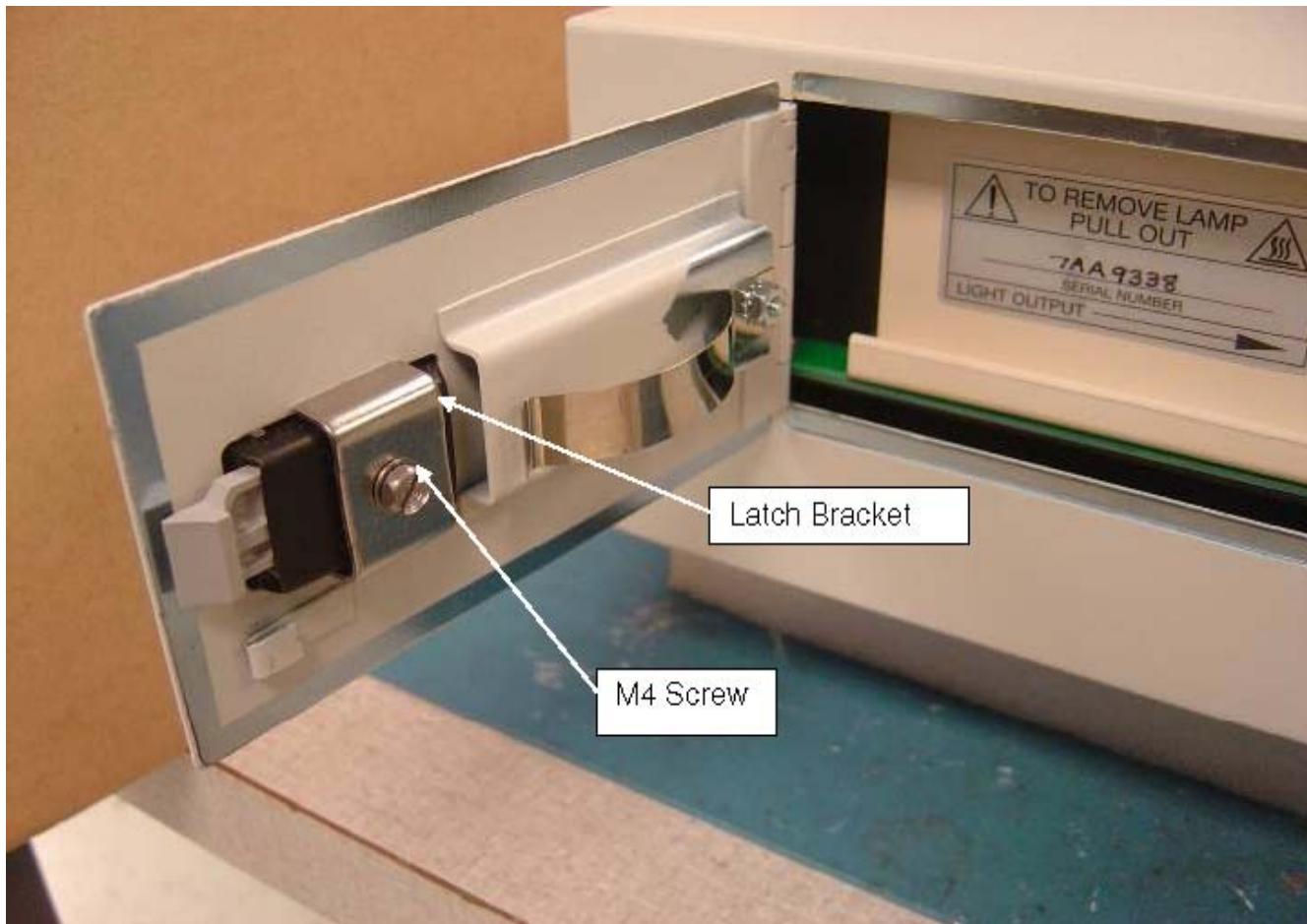


Figure 2

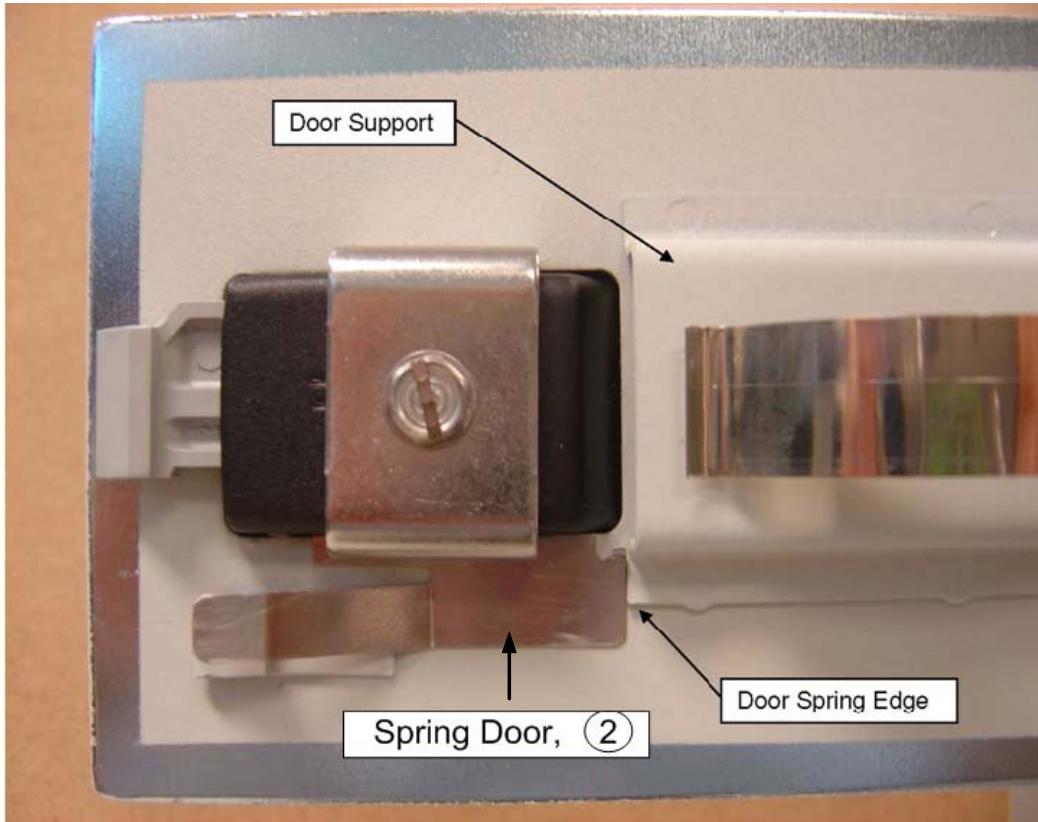


Figure 3

Lamp Care and Replacement



WARNING The lamp module and nearby structures become VERY HOT, even after brief operation. To prevent burns, turn off the ProXenon 350 Surgical Illuminator and allow it to cool for 10 minutes prior to removing lamp module.



Caution Do not operate the ProXenon 350 Surgical Illuminator without a lamp module installed.

Replace the lamp under any of the following conditions: accumulated usage of more than 650 hours, an increasing number of ignition attempts required to ignite lamp, failure of lamp to start, or low light output.

To remove the lamp module:

- 1 Turn the ProXenon 350 Surgical Illuminator lamp off, insuring continuous fan operation.
- 2 Wait 10 minutes for the lamp to cool.
- 3 Turn the ProXenon 350 Surgical Illuminator off and unplug the power cord.
- 4 Unlatch and open the access door located on the side of the ProXenon 350 Surgical Illuminator – Figure 4.
- 5 Grasp the handle and pull the entire lamp module out of the ProXenon 350 Surgical Illuminator – Figure 5.

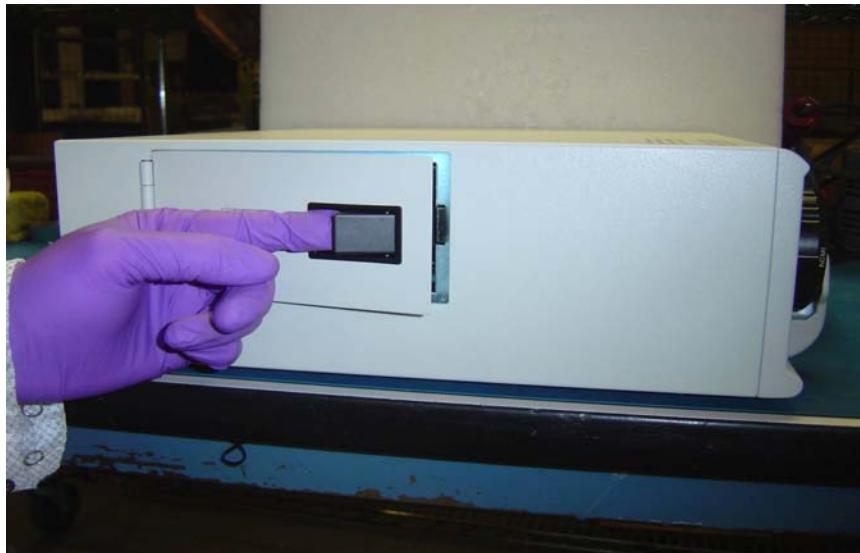


Figure 4

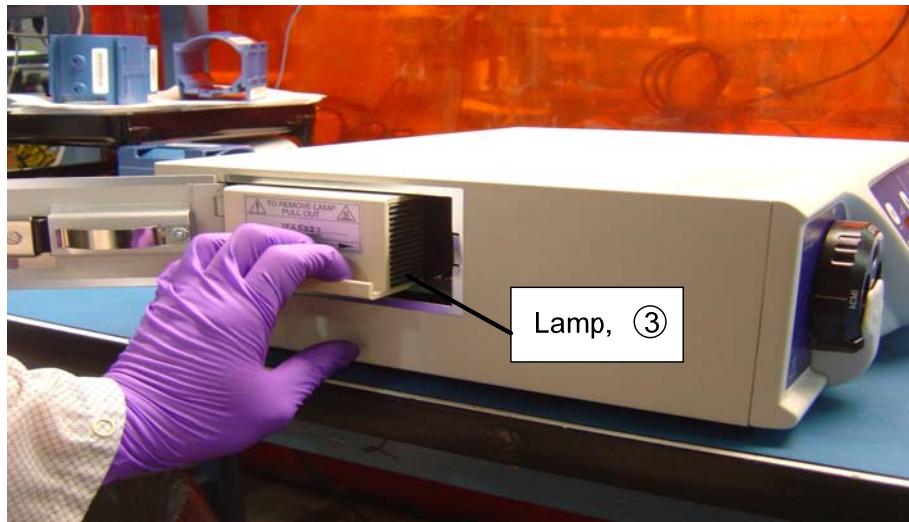


Figure 5

To insert a new lamp module:



Caution Do not touch the face of the lamp (glass window).

- 1 Orient the new lamp module so that the window of the Welch Allyn lamp REF 90209 is facing the front of the ProXenon 350 Surgical Illuminator.
- 2 Align the sides of the lamp module and place it in the receiver channel. Firmly push in the lamp module to ensure proper connection.
- 3 Close and latch the door. If the door does not close completely, the lamp module is not fully seated.

To Reset the Lamp Hours Meter:

- 1 Verify that the lamp is off.
- 2 Press and hold the **Full Dim + Decrease** buttons.
- 3 While holding the **Full Dim + Decrease** buttons, press and hold the **Lamp ON/OFF** button for three seconds. The the **Lamp Hour** window flashes three times and resets to zero.

Note: To cancel reset, release any button during the three-second period.

Cover Removal

- 1 Remove the eight 6-32 screws, four on the back and four on the bottom of the ProXenon 350 Surgical Illuminator – Figure 6.
- 2 Unlatch and open the access door located on the side.

3 Slide the cover out.



WARNING Failure to open the lamp door prior to cover removal/installation would result in damage to the microswitch.



Figure 6

Plunger Ball Removal:

1. Remove plunger ball from the turret housing.
2. When reinstalling, apply Loctite 242 to the threads of the set screw. Screw the set screw in all the way and back out half a turn.

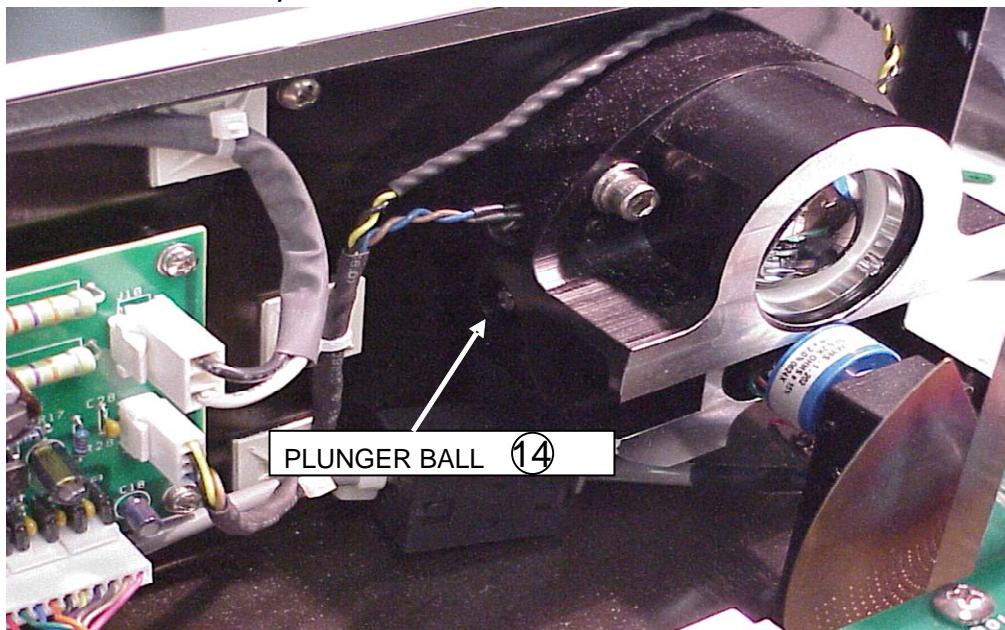


Figure 7.

Turret Cover Removal

Remove the 10-32 screw securing the turret cover to the front panel – Figs. 8 & 9.

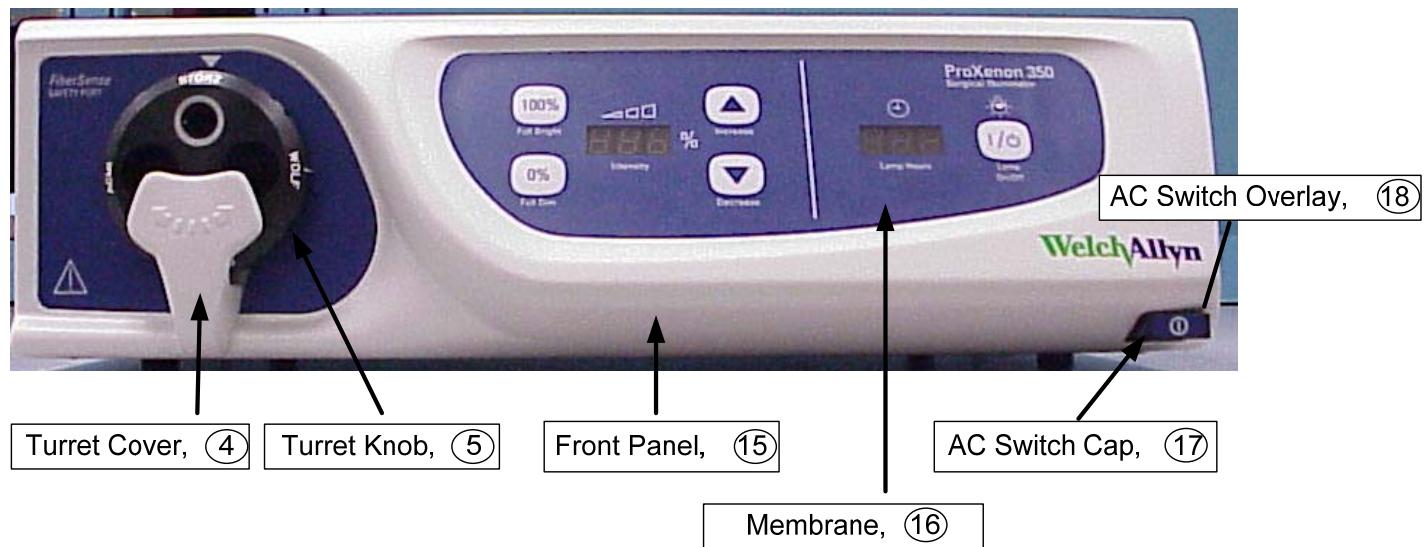


Figure 8

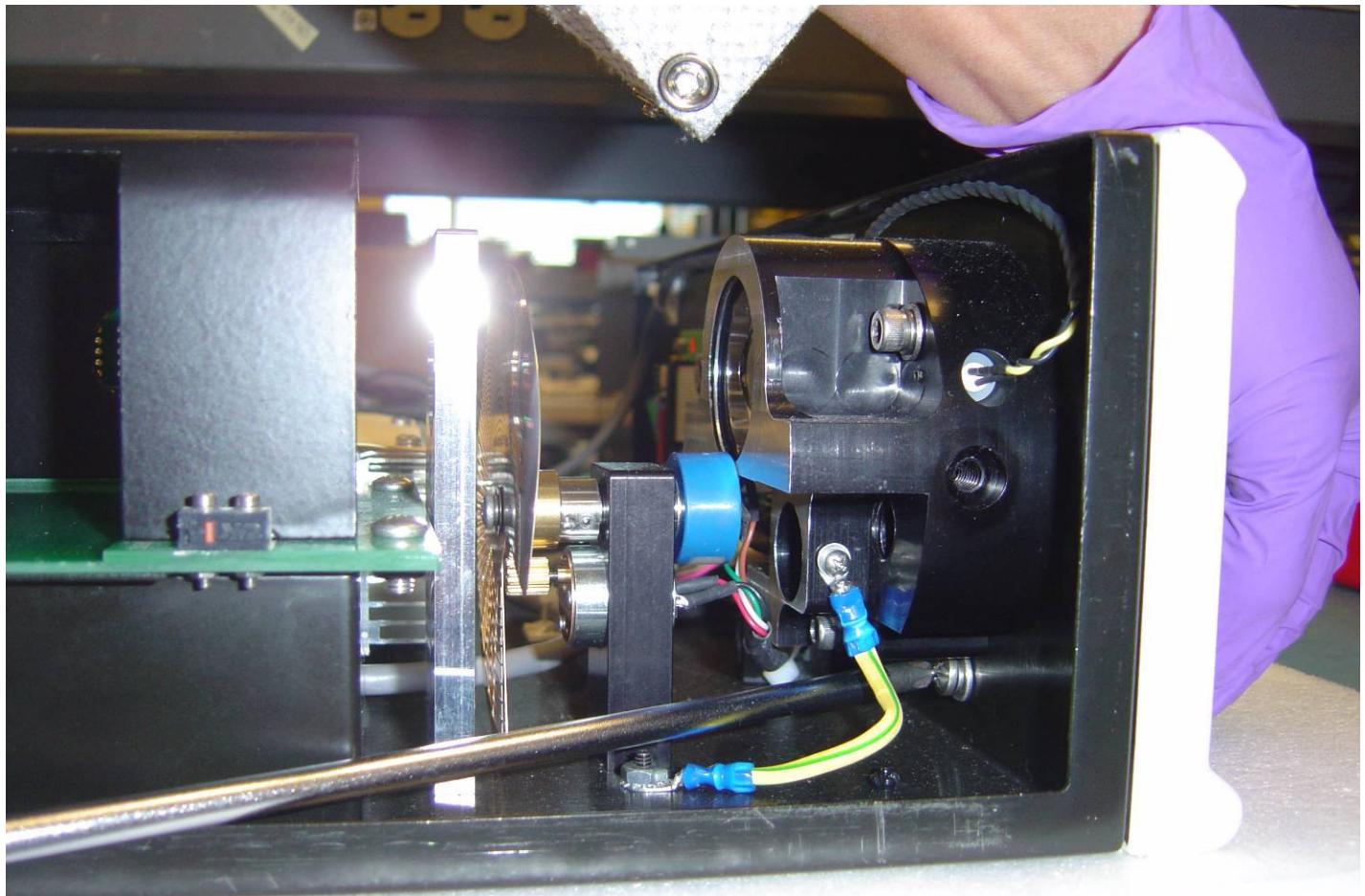


Figure 9

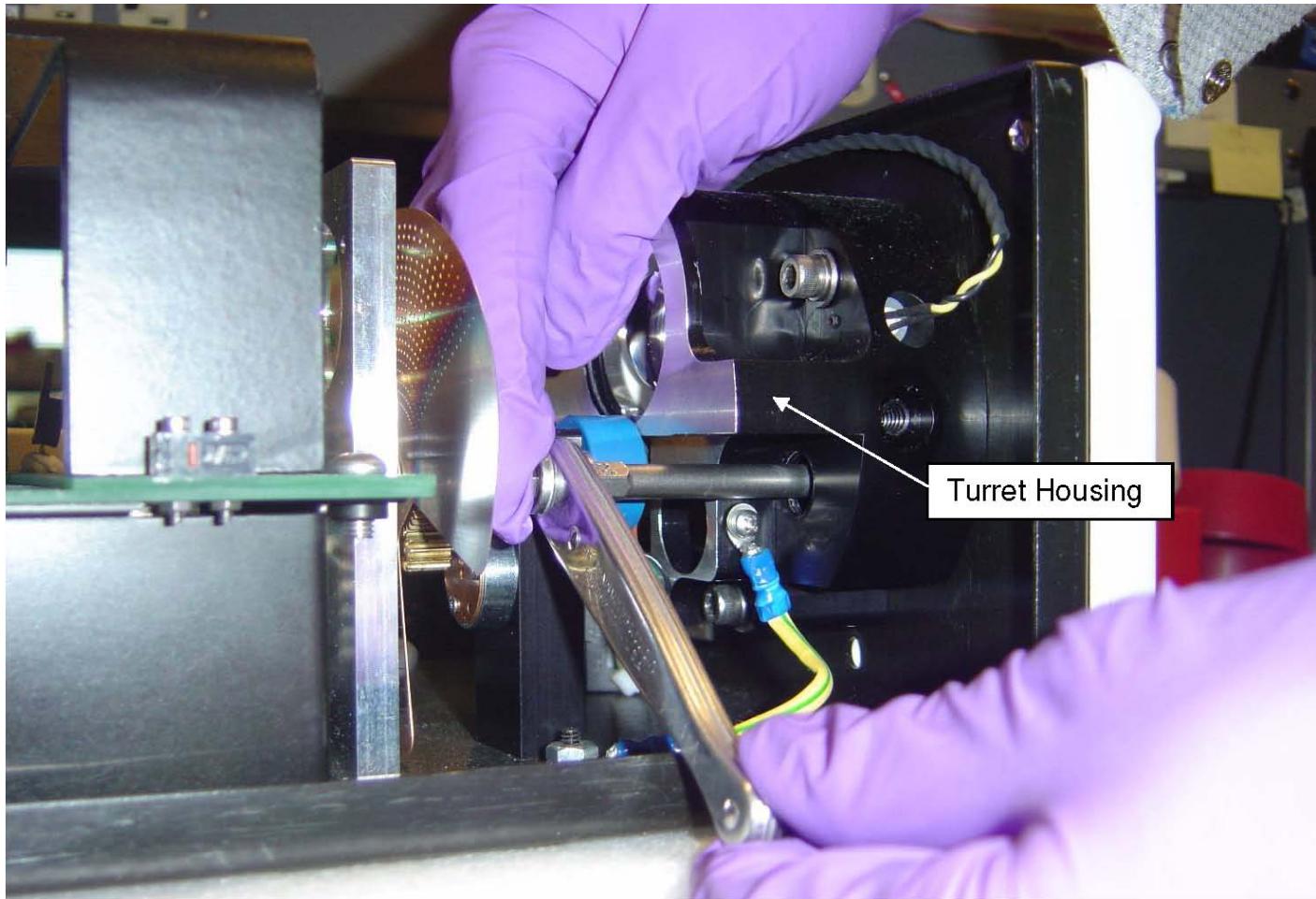


Figure 10

Turret Knob Removal

- 1 Remove the four 6-32 Phillips flat head screws securing the turret knob to the turret disk – Figs. 8 & 10.
- 2 Rotate the turret knob to gain access to the 4 screws through the $\frac{1}{2}$ inch diameter hole in the turret housing.

Turret Disk Removal

- 1 Remove the 10-32 screw securing the turret disk to the turret housing – Figure 10.
- 2 Pull the turret disk away from the unit – Figure 12.
- 3 When reinstalling, torque 10-32 screw to 4 in-lb, rotate turret disk and ensure disk play or movement at each of the four port locations is minimal. Install turret knob and test rotation. If more adjustment is needed, increase torque and test rotation. Torque range may be set between 4-7 in-lbs.

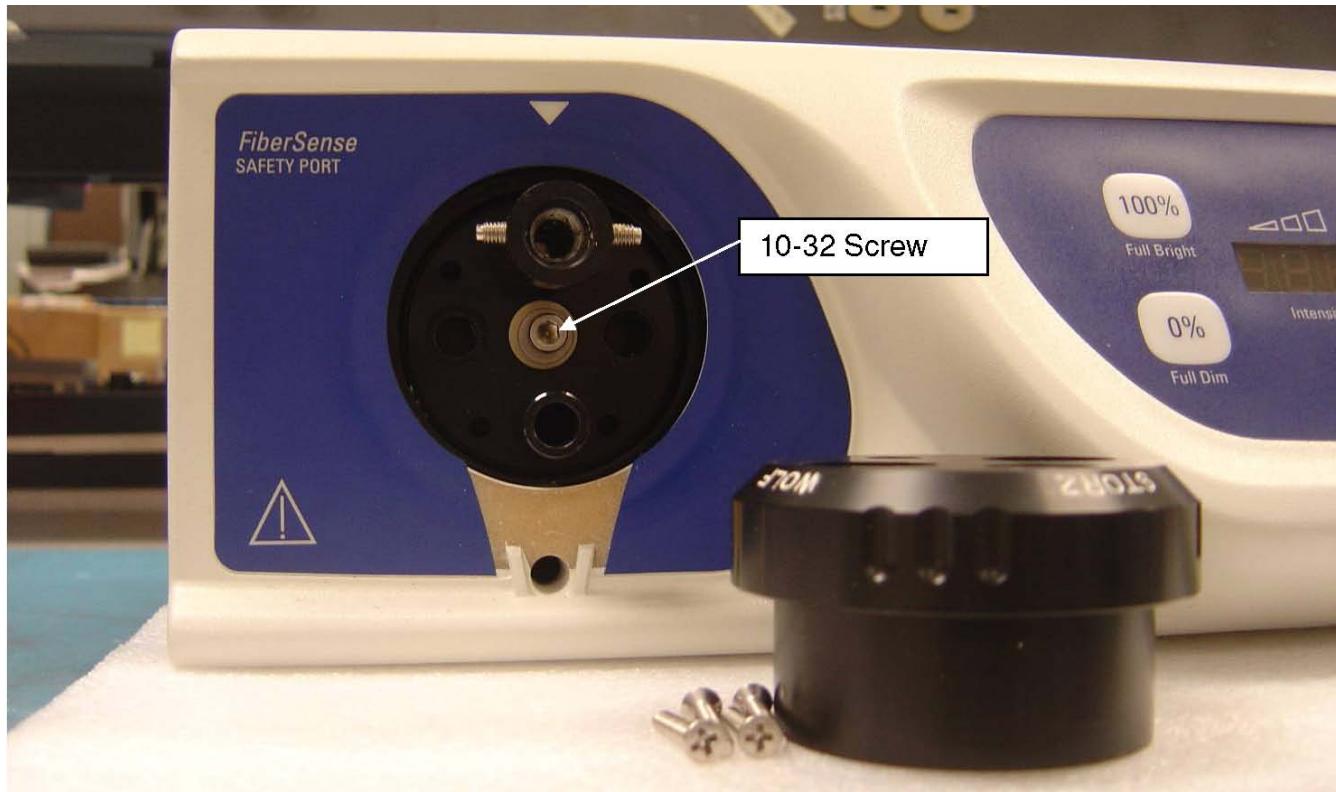


Figure 11

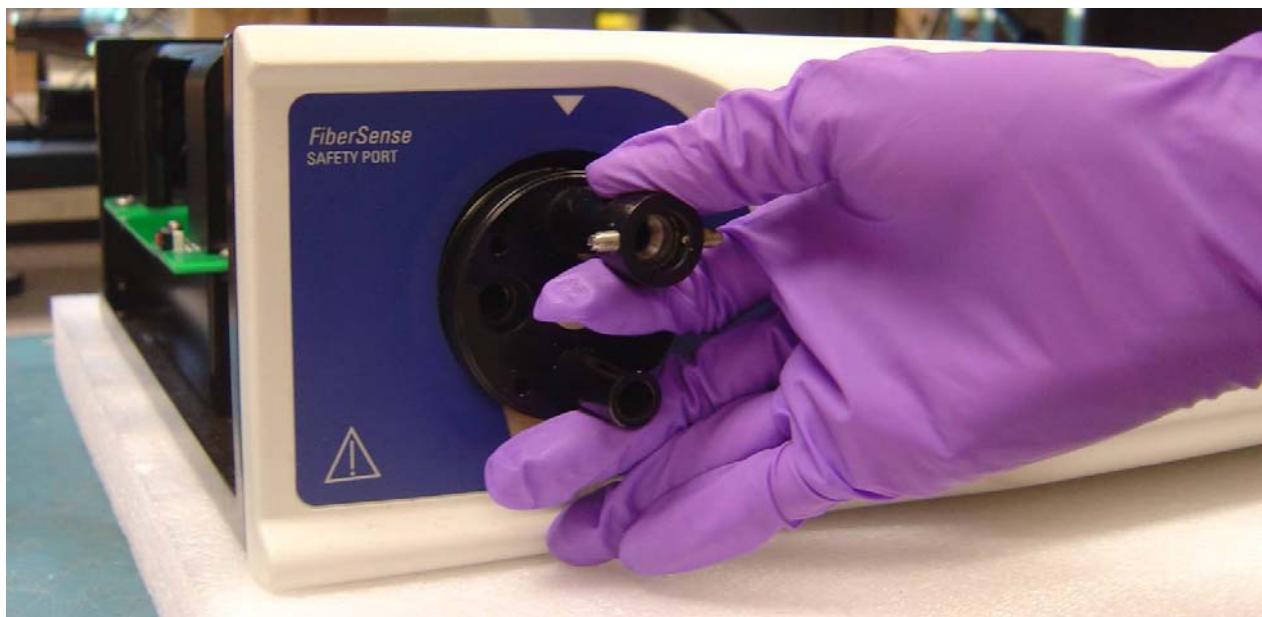


Figure 12

Front Panel Removal

1. Remove the six 6-32 screws securing the front panel to the base – Fig. 13.
2. Disconnect the 9-pin (J2) and 2-pin (J4) connectors from the Control Board.
3. Disconnect the 20-pin (J12) connector from the Display Board – Fig. 14.

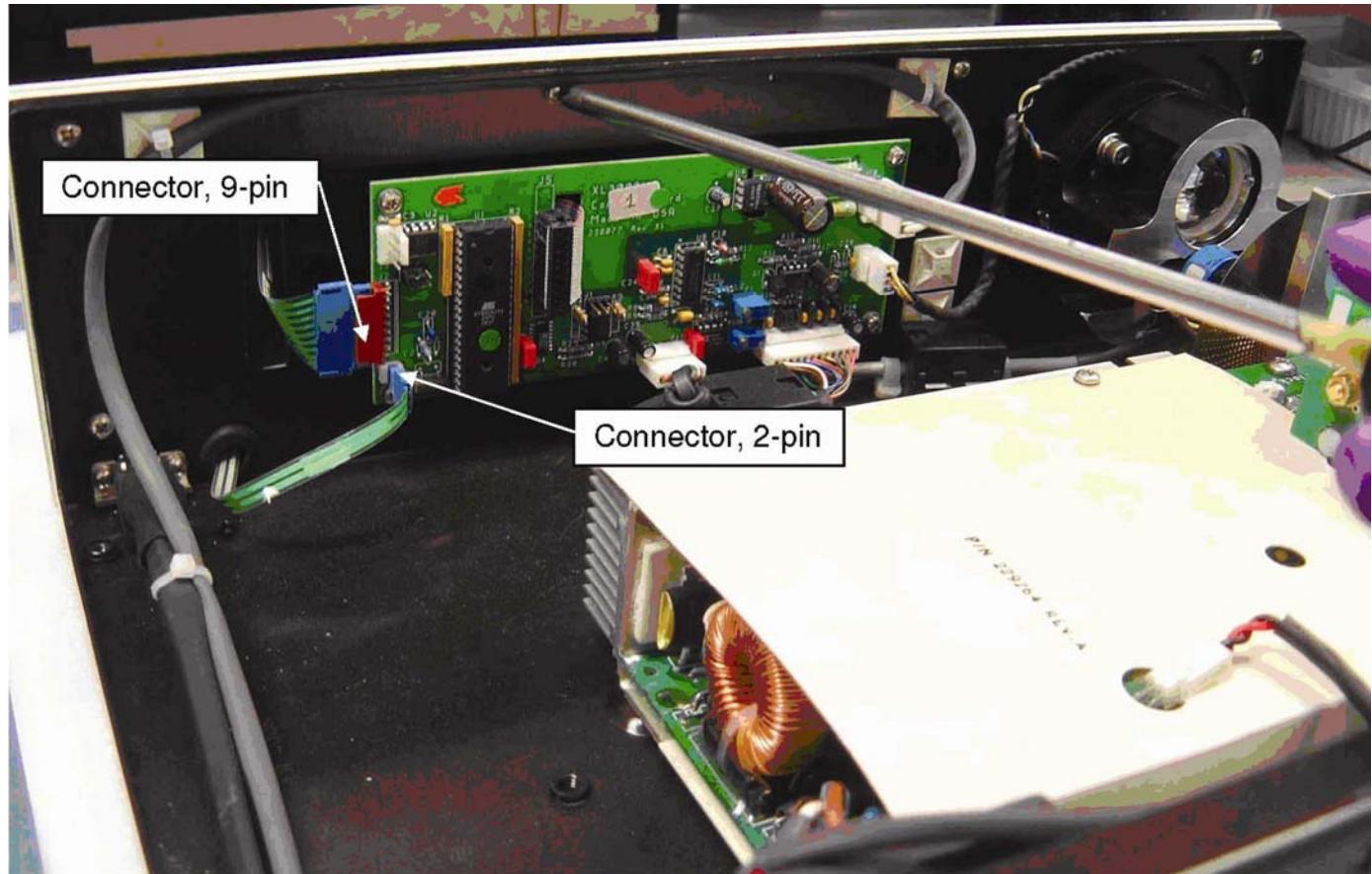


Figure 13

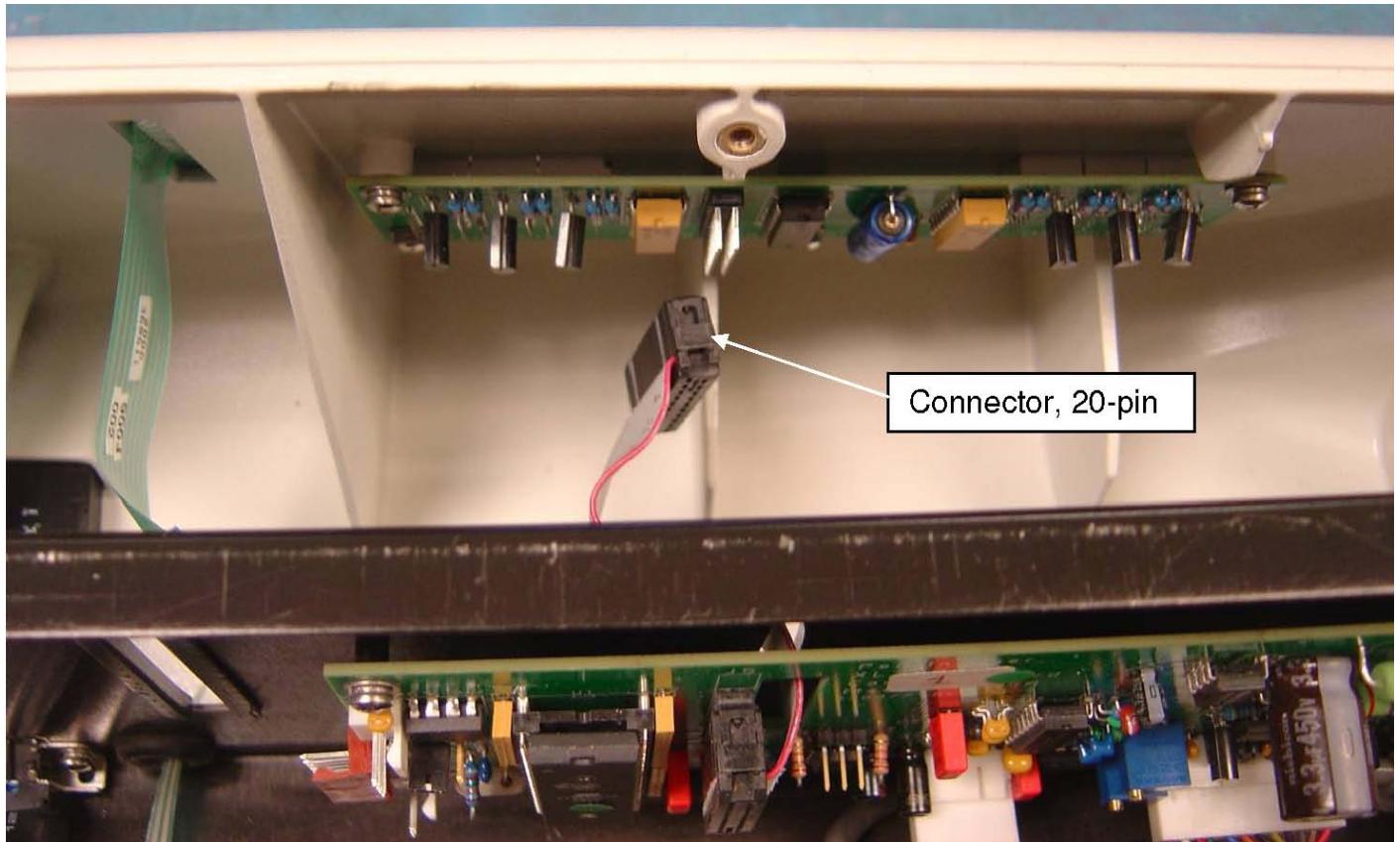


Figure 14

Display Board Removal

Remove the five 4-40 screws securing the display board to the front panel – Fig. 15.

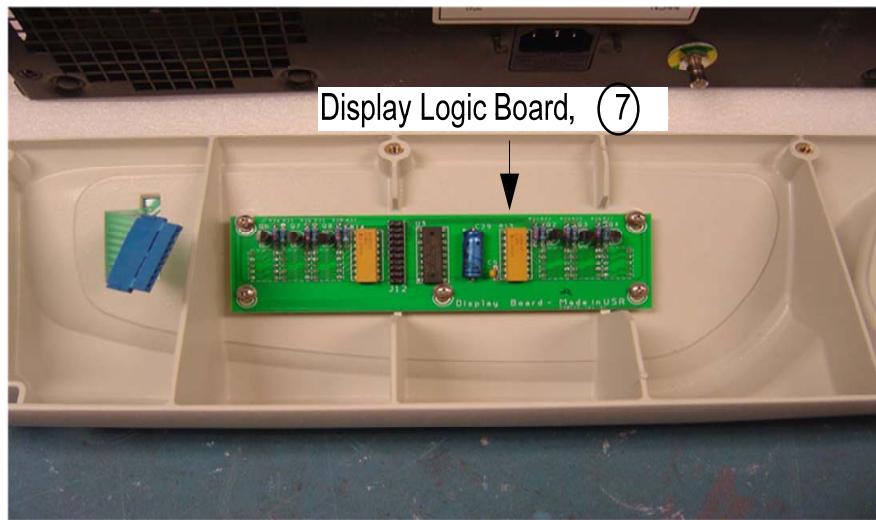


Figure 15

Control Board Removal

1. Remove the four 4-40 screws securing the control board to the base – Fig. 15.
2. Disconnect the 3-pin (J10) connector.

3. Disconnect the 4-pin (J7) connector.
4. Disconnect the 12-pin (J8) connector.
5. Disconnect the 6-pin (J9) connector.

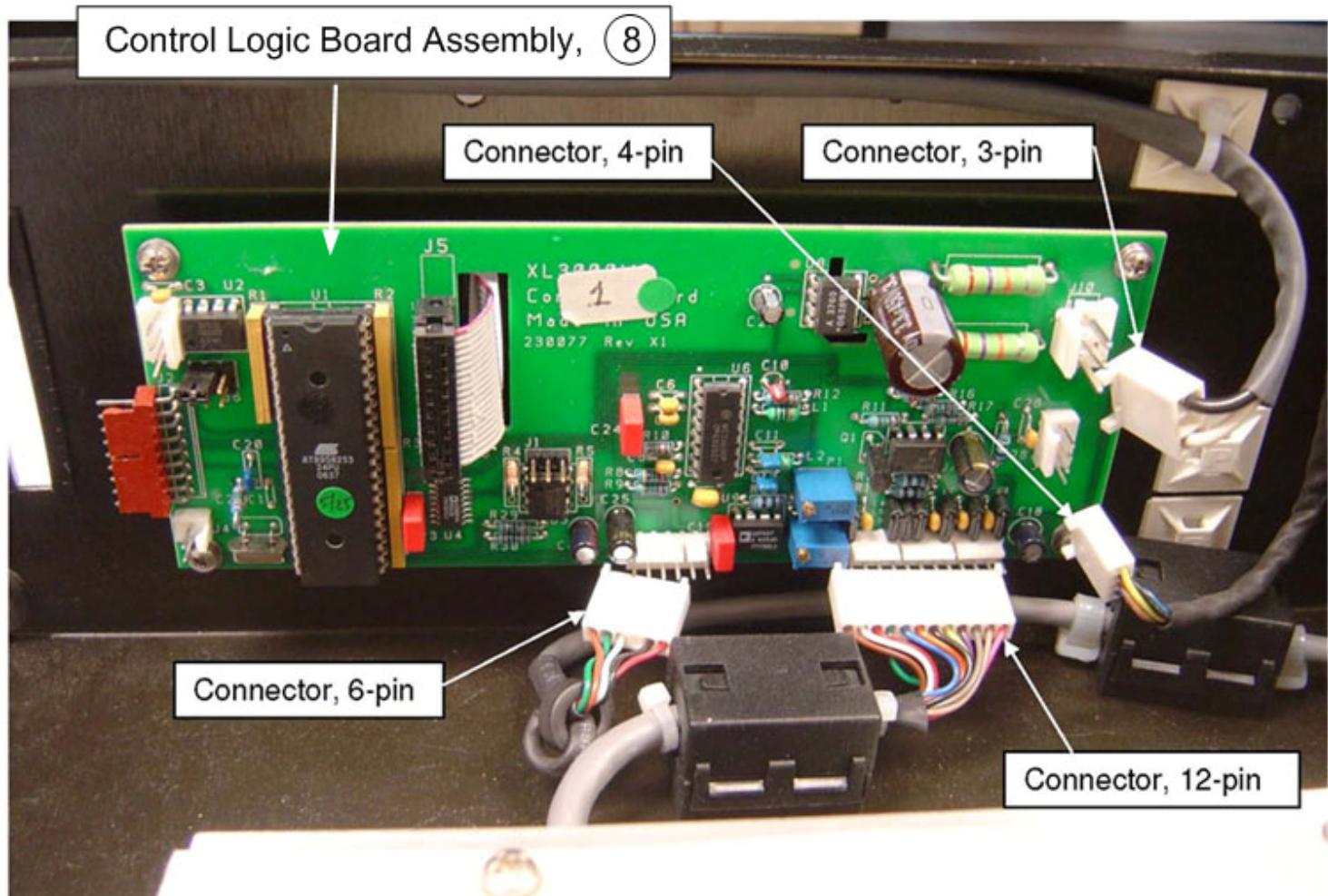


Figure 16

Hot Mirror Assembly Removal

Remove the two 6-32 screws securing the hot mirror assembly to the base – Fig. 17.

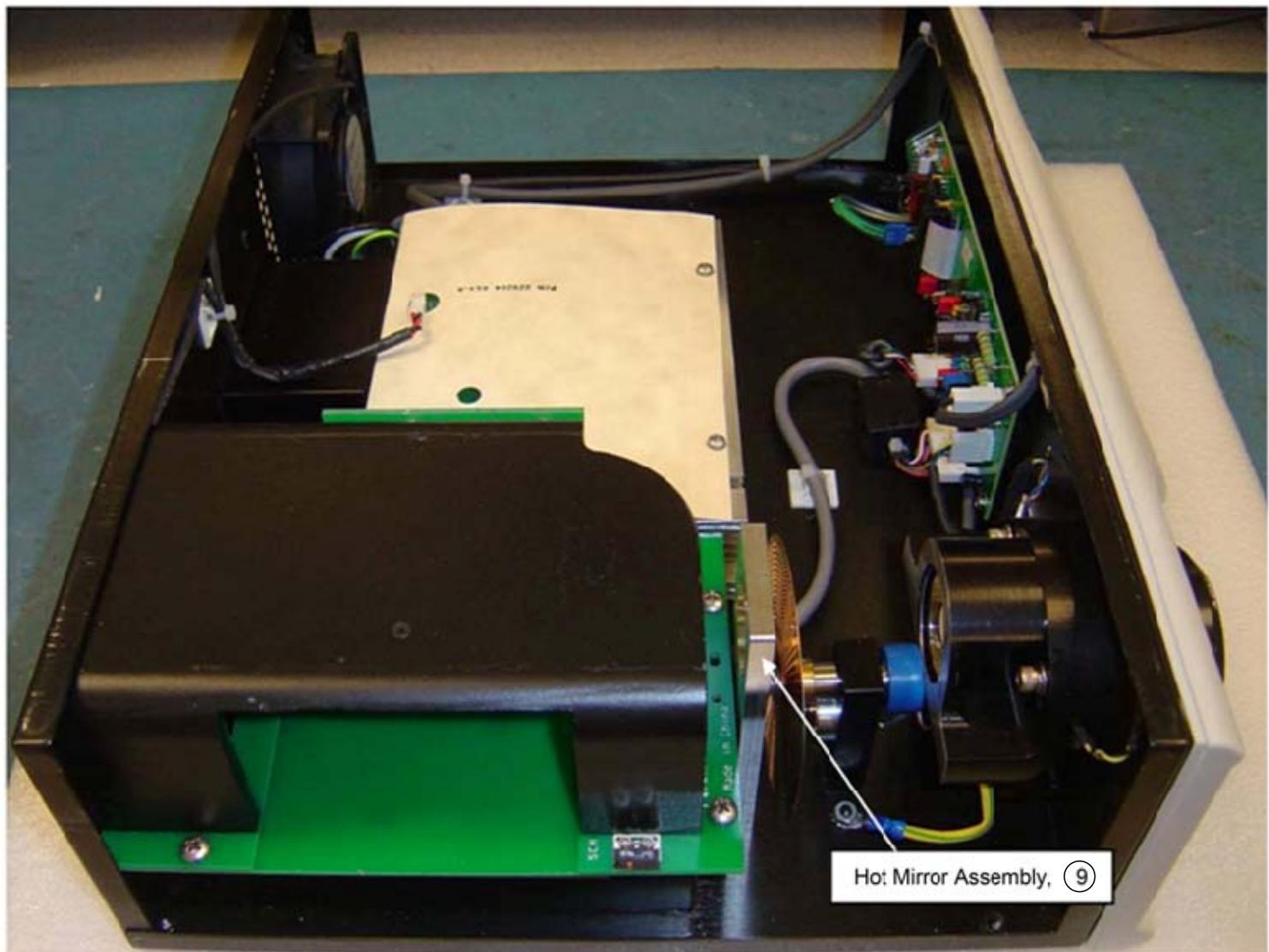


Figure 17

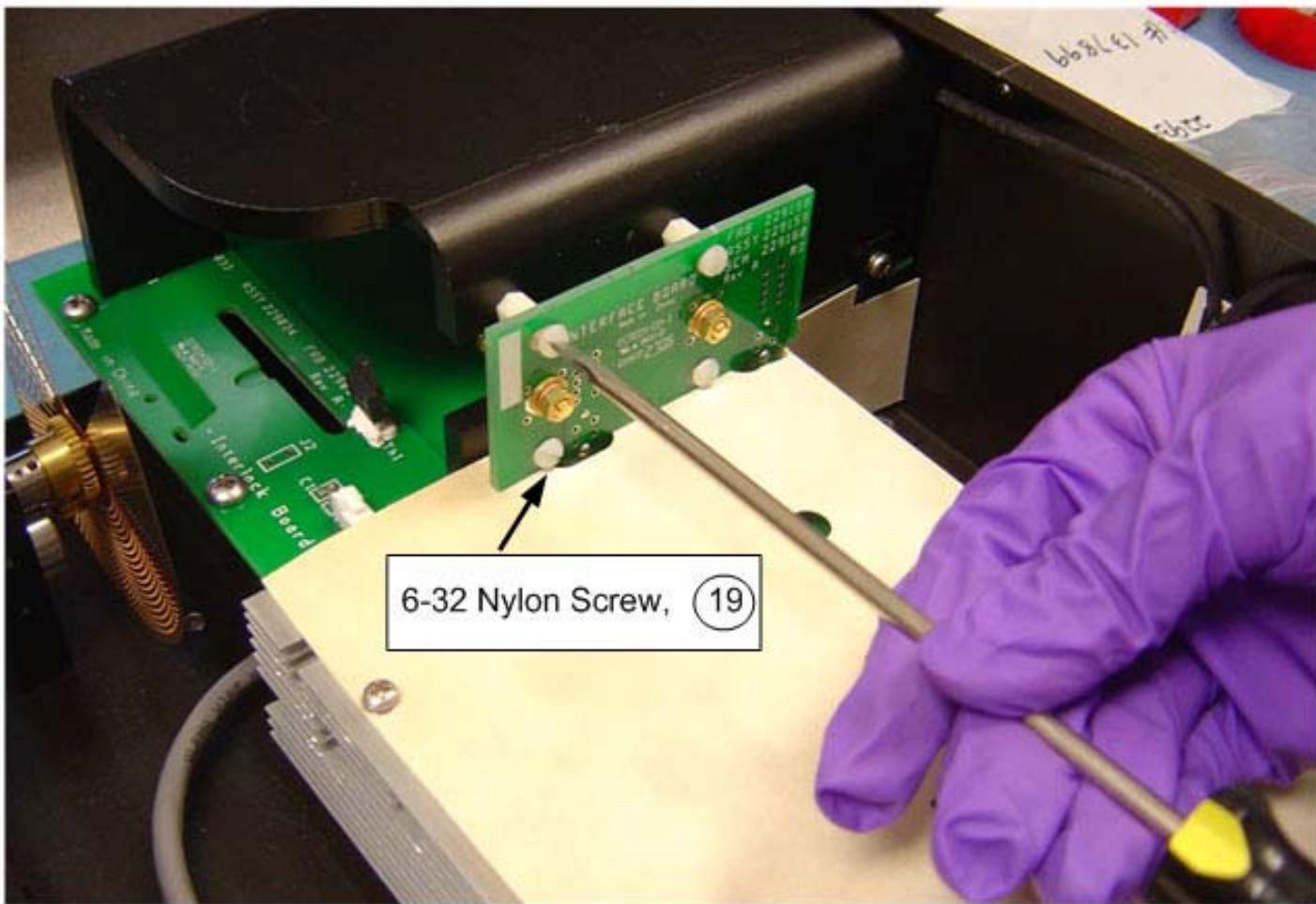


Figure 18

Fan Assembly Removal

1. Remove the four 6-32 nylon screws on the interface board – Fig. 18.
2. Remove the interface board by pulling it up – Fig. 19.
3. Disconnect the 2-pin fan connector – Fig. 19.
4. Remove the two lower 6-32 nylon standoffs used for the interface board – Fig. 20.
5. Remove the four 6-32 screws on the interlock board assembly – Figs. 21 & 22.
6. Remove the two 6-32 screws securing the nomex duct to the power supply – Fig. 23.
7. Remove the nomex duct.
8. Disconnect the 2-pin (J1) connector from the interlock board – Fig. 23.
9. Remove the interlock board assembly.
10. Remove the four plastic mounting rivets for each fan, cut cable tie, and remove fan assembly. Note orientation of fans when reinstalling – Figs. 24 & 25.

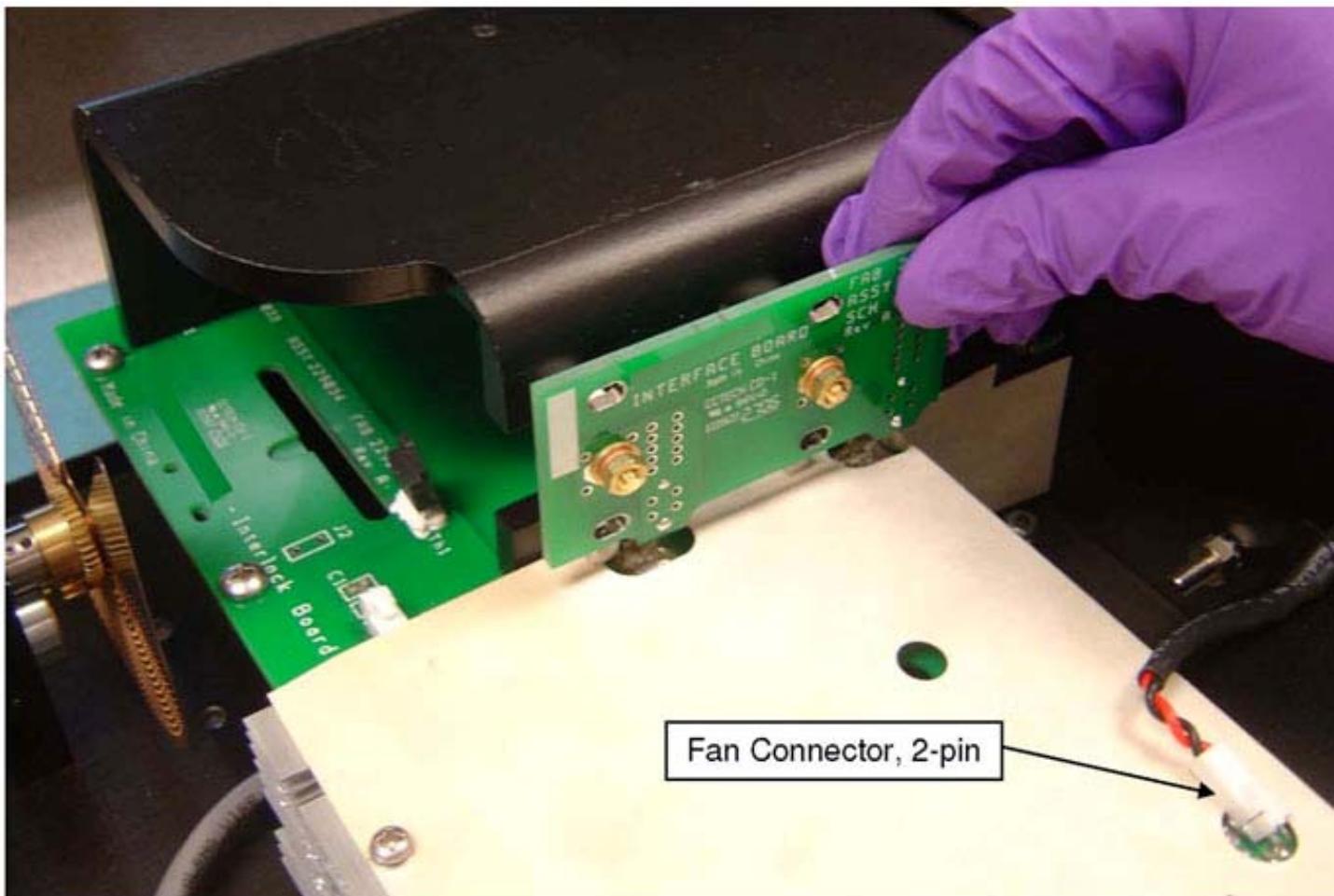


Figure 19

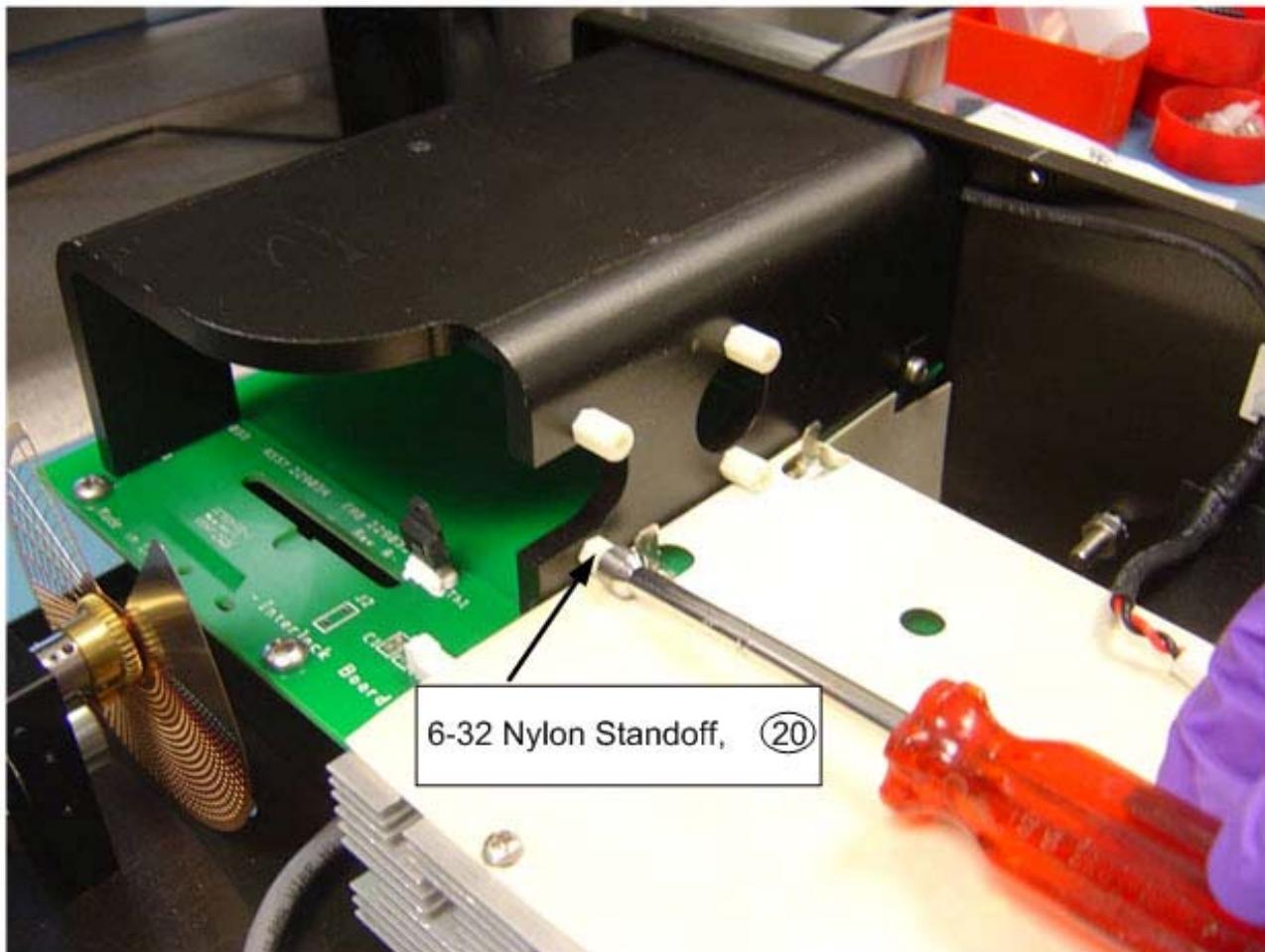


Figure 20

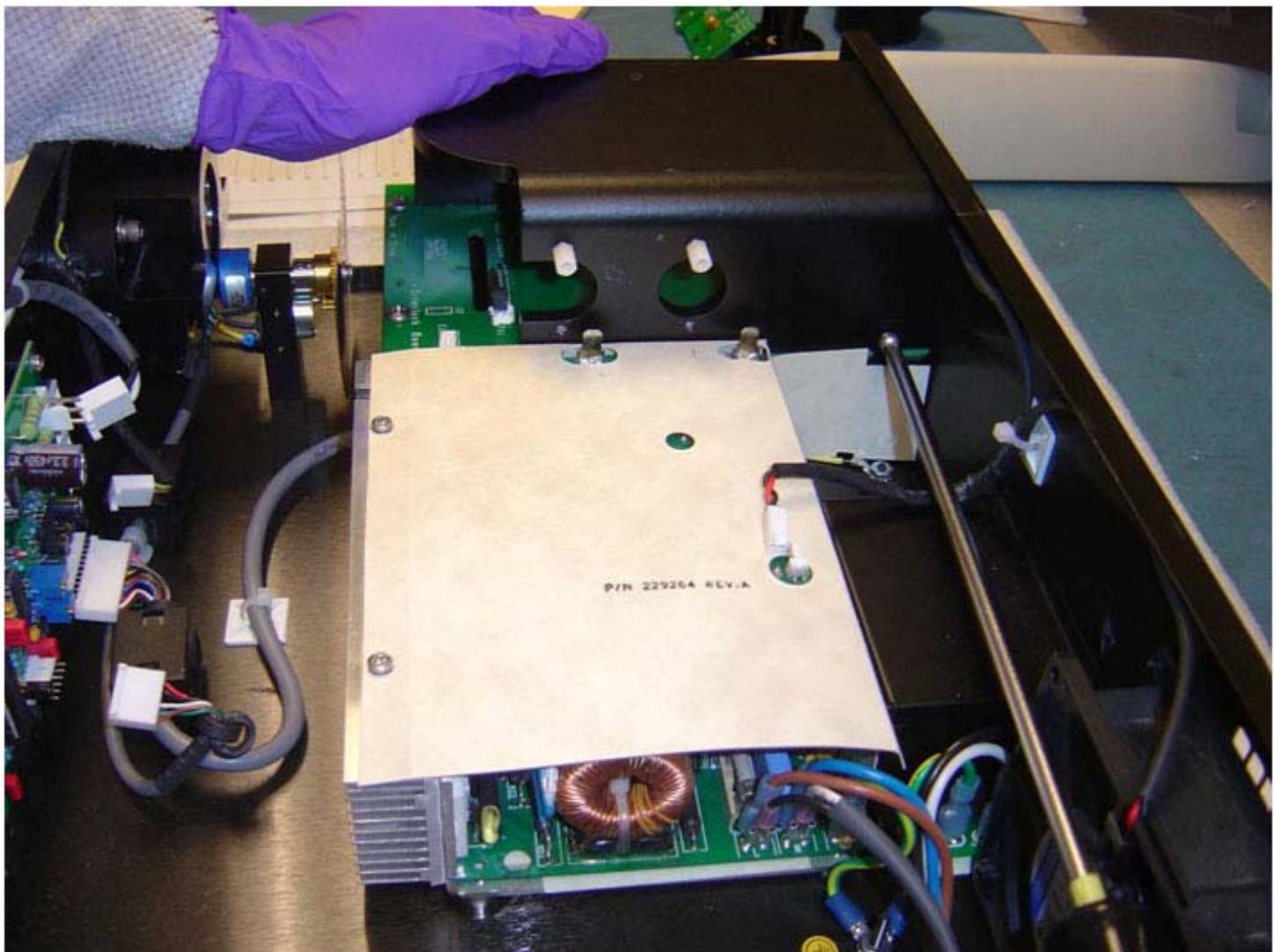


Figure 21

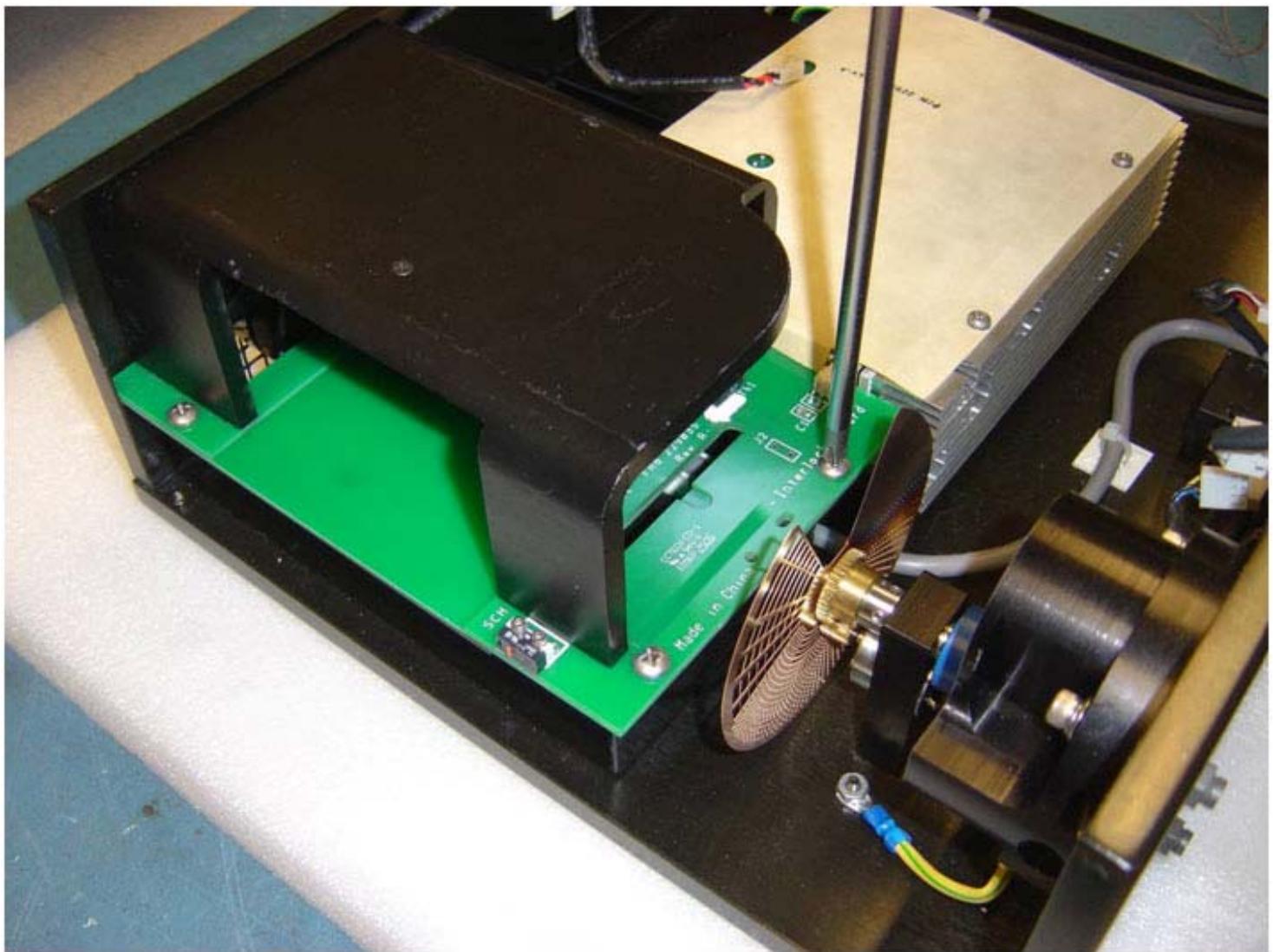


Figure 22

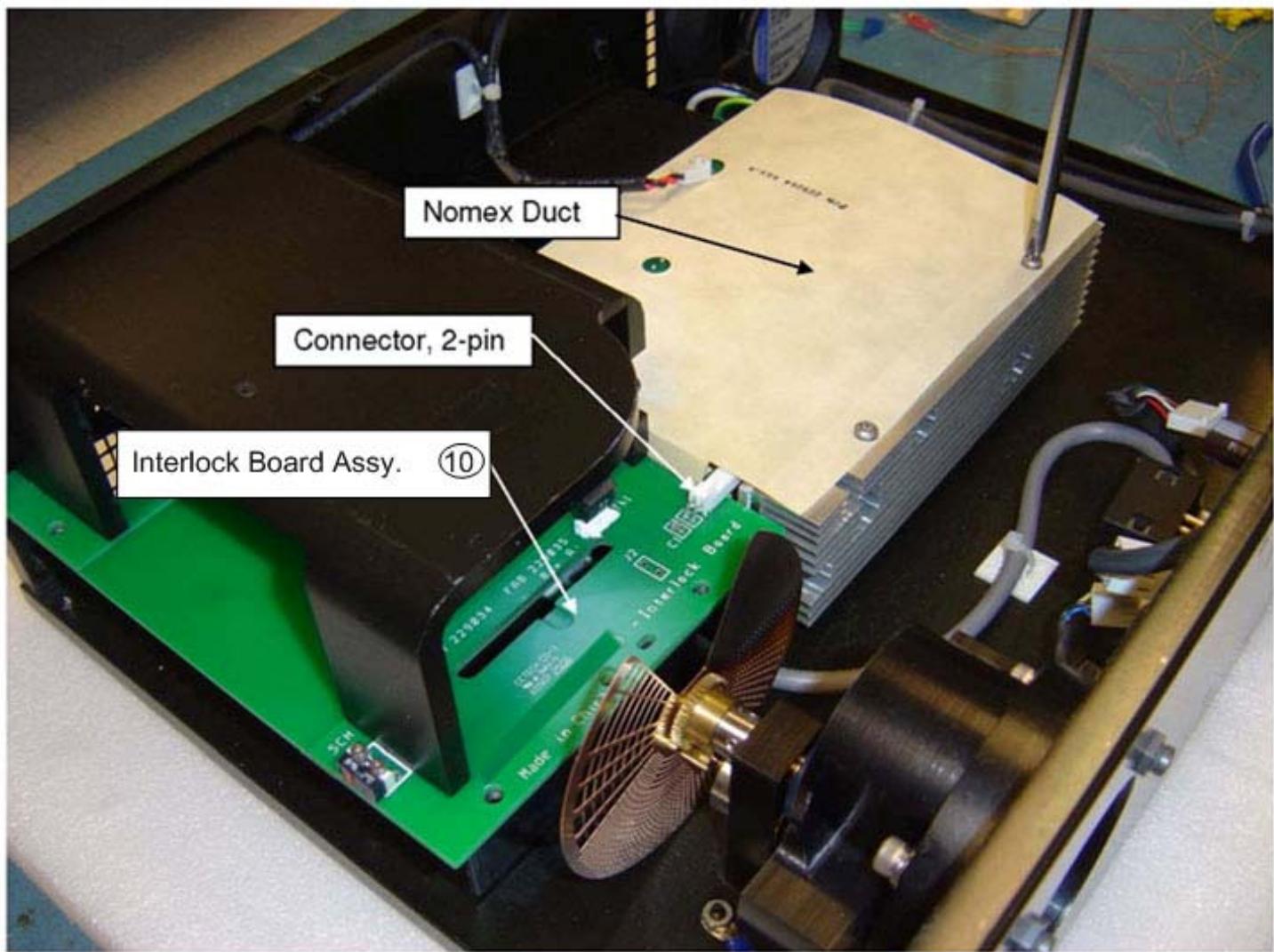


Figure 23

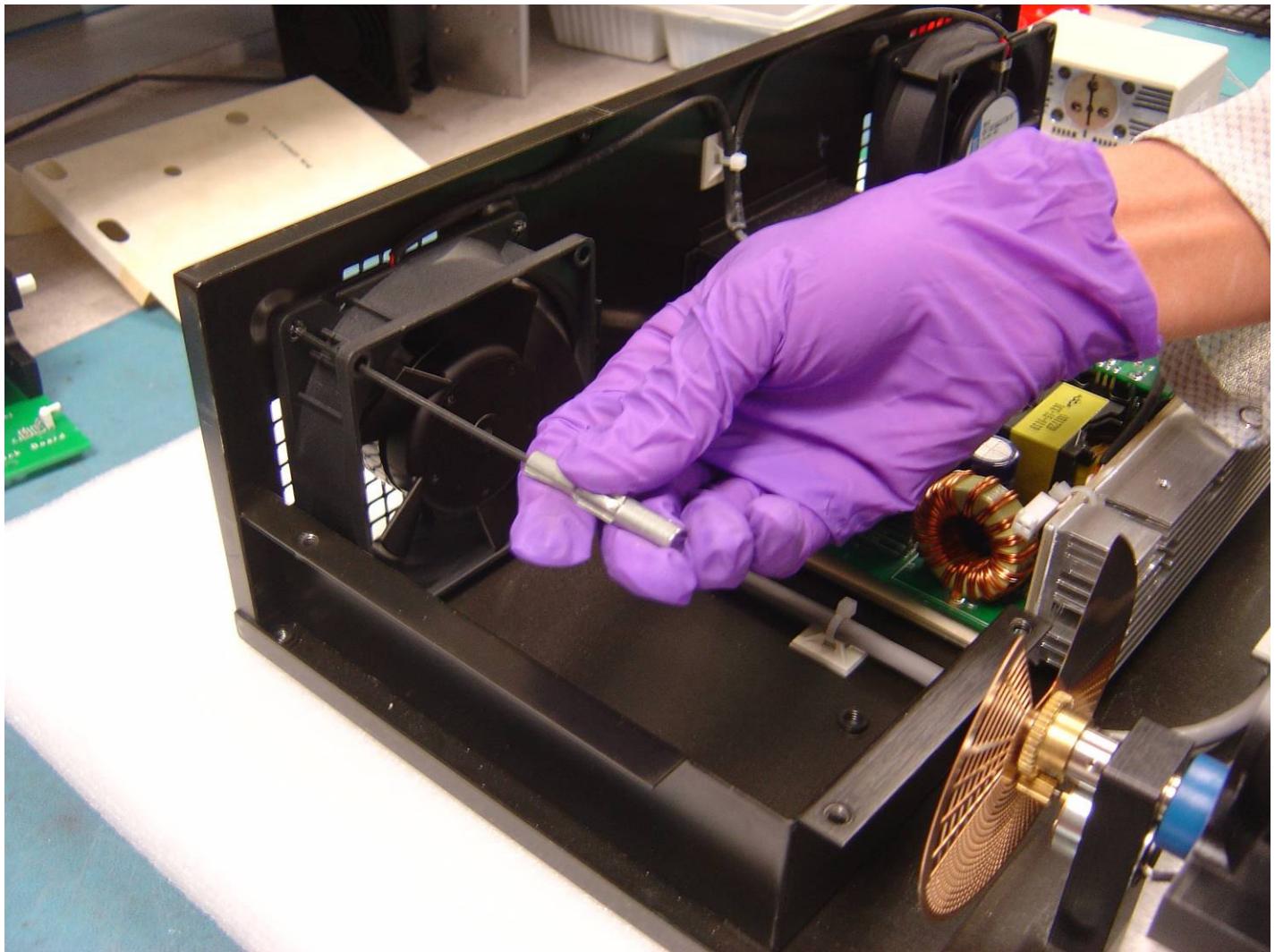


Figure 24

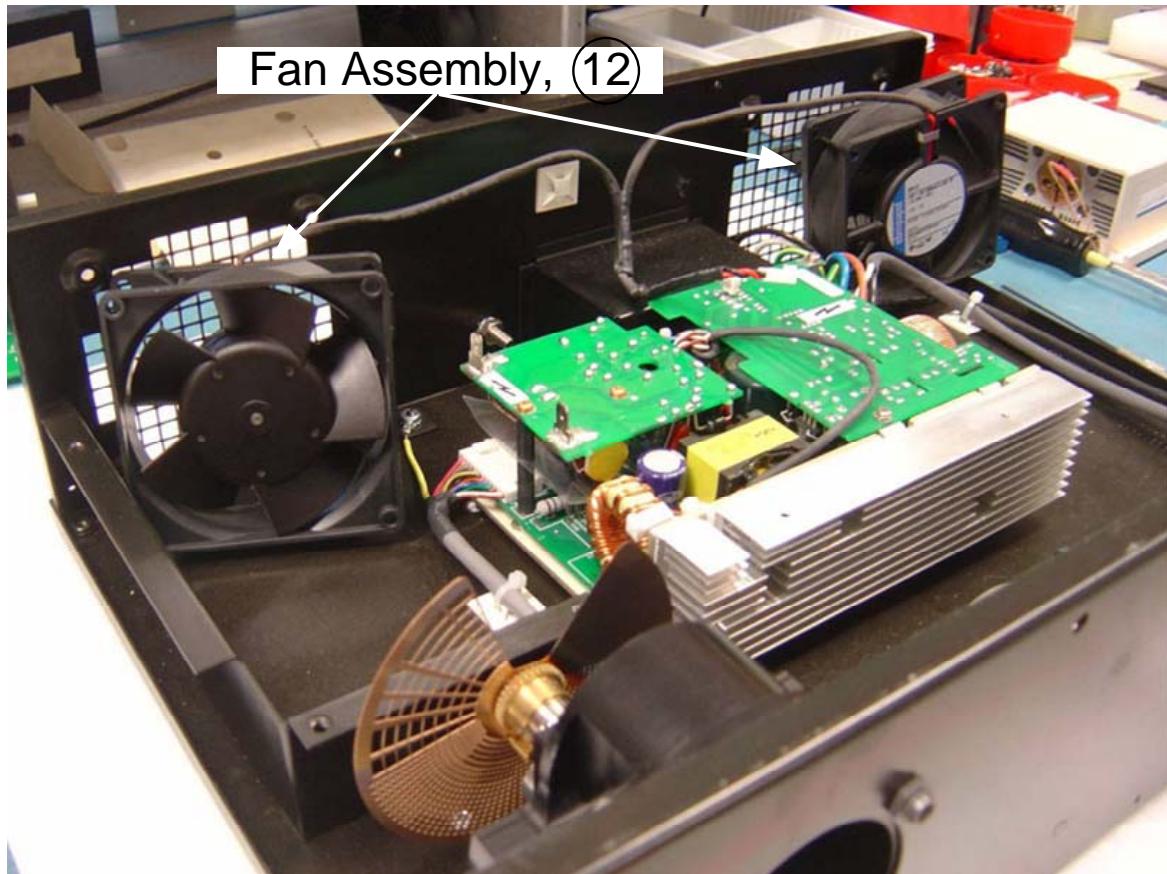


Figure 25

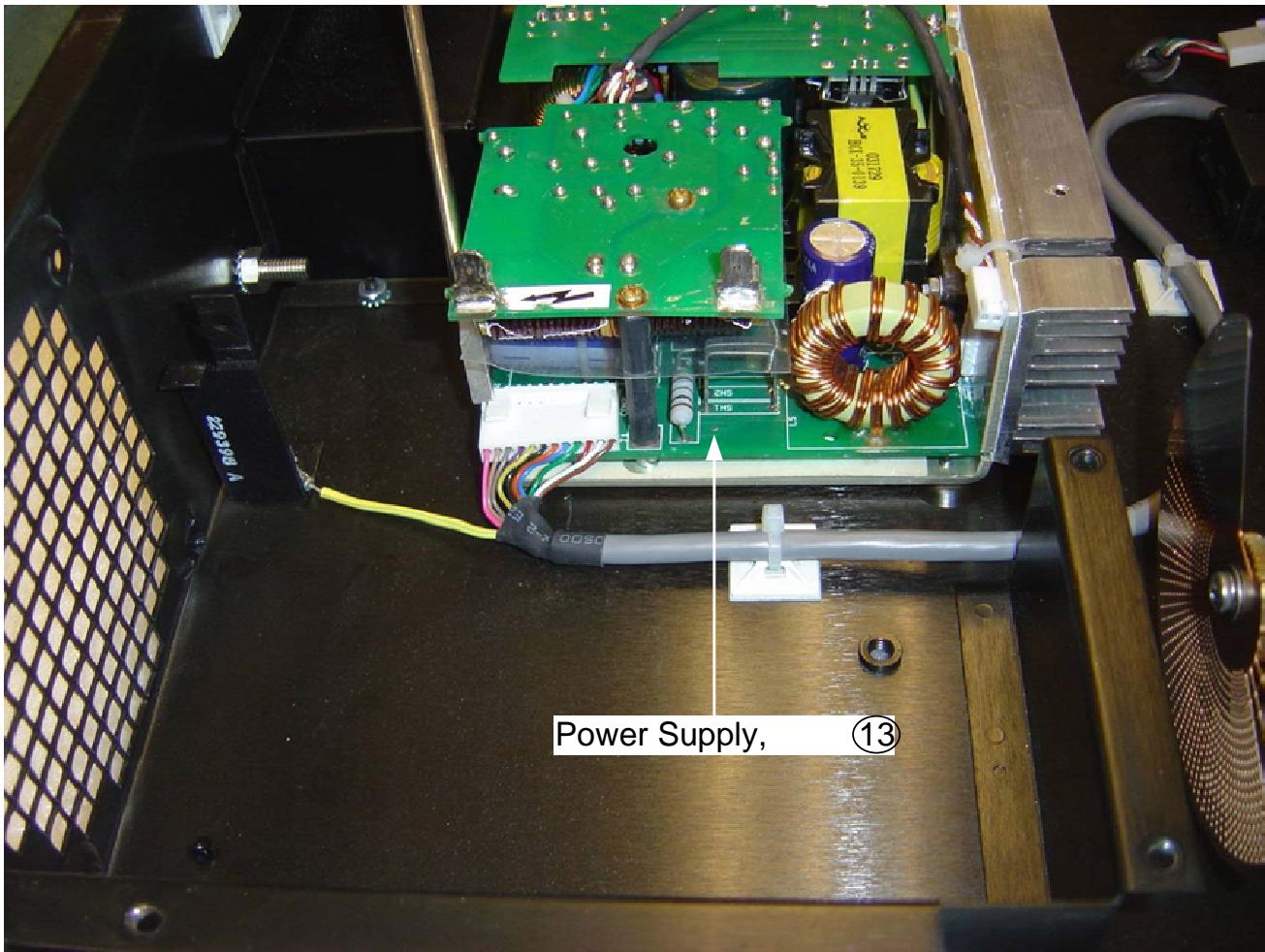


Figure 26

Power Supply Removal

1. Disconnect the 12-pin connector (Con2) using a flat head screwdriver – Fig. 26.
2. Disconnect live, neutral, & ground connections – Fig. 27.
3. Remove the four M3 mounting screws from the bottom of the base.

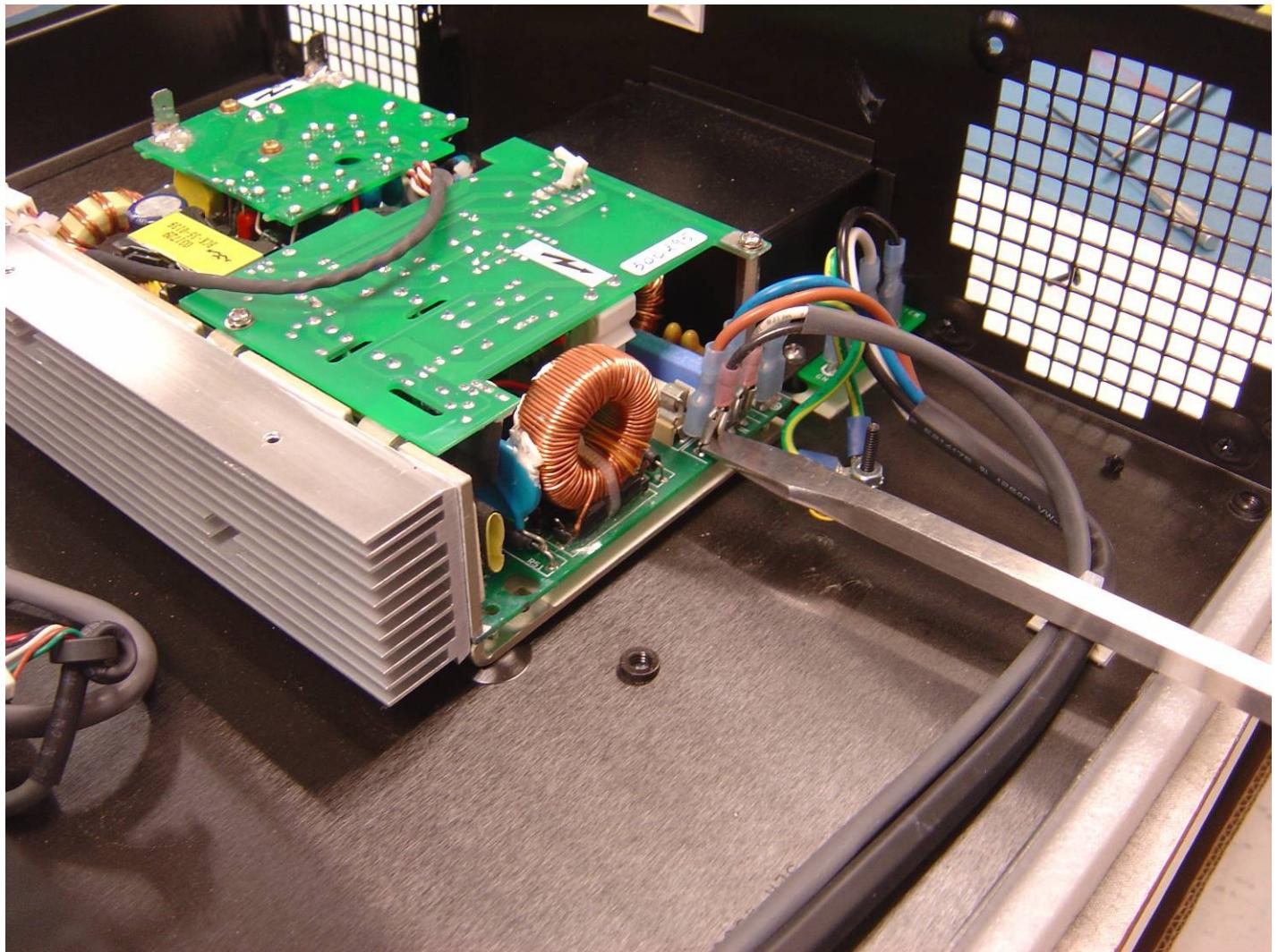


Figure 27

Line Filter Removal

1. Remove the two 6-32 screws and one 6-32 nut – Fig. 28.
2. Disconnect live, neutral, & ground connections – Fig. 28.
3. Remove the line filter shield – Fig. 28.
4. Remove the 6-32 screw and two 4-40 nuts – Fig. 29.



Figure 28

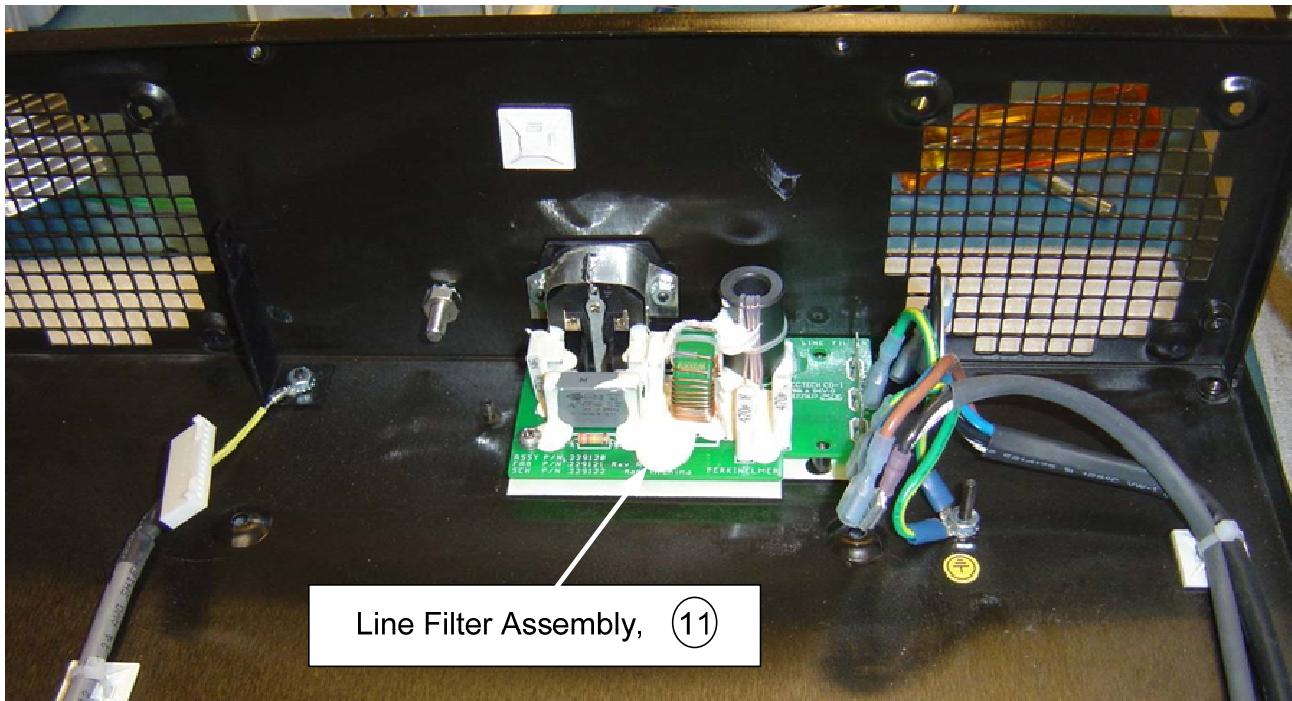


Figure 29

Specifications

Electrical Input

Input Voltage	100-240 VAC, 50/60 Hz universal, 6.0A input
AC Power Connector	Located on rear panel, dual fuses
Line Cord	IEC60320
Fuse	250 VAC T6.3A, 5x20 mm

Performance

Light Output	1800 Lumens minimum initial input through 3 mm glass rod at full rated power. Spectral output 380-750 nm nominal.
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Over-temperature Protection	Automatic shutdown to prevent overheating.
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Over Heat Recovery /AutoCool	Fans will remain on if thermal shutdown occurs when Auto Cool power is Auto Cool ON. Use Lamp ON/OFF button to re-ignite lamp.
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Fiberoptic Connection Safety Feature	Output shutter will not open unless a fiberoptic cable is fully inserted into the active port on the turret. Output shutter will fully close if fiberoptic cable is removed from active port. Intensity setting flashes during this status.
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Lamp Power Supply	PS300-12 type
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Lamp Module	Welch Allyn 300 Watt Xenon REF 90209
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Lamp Module Replacement	Access via latched hinged door.
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Lamp Life	650 hours to 50% of initial output specification measured through 3mm glass rod.
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Mechanical and Environmental

Dimensions	Height 12.98 cm (5.1") x Width 43 cm (16.9") x Depth 38.15 cm (15.0") approx.
Weight	9.75 kg. (21.5 lbs.)
Operating Temperature	6 C to 40 C (43 F to 104 F)
Storage-Temperature	-20 C to +85 C (-4 F to +185 F)
Operating and Storage Humidity	10-85% relative humidity, non-condensing
Operating Pressure	1013 hPa ± 170 hPa
Audible Noise	<45 dB per ISO 7779 bystander measurement standard
Shipping, Shock and Vibration	per ISTA 1A
Safety, EMC, and Regulatory Compliance	CAN/CSA C22.2 No. 601.1 CAN/CSA C22.2 No. 601.1.2 UL 60601-1 IEC/EN 60601-1 IEC/EN 60601-1-2

Classification

Class 1	Relies upon the connection to the protective earth conductor of the installation to prevent shock hazards.
Type BF	Applied part is floating from earth.
IPX0	No protection against the ingress of liquids.
Mode of Operation	Suitable for continuous operation.
Flammable	Not suitable for use in the presence of a Flammable Anesthetic Mixture.

Electromagnetic Compatibility



WARNING AC cables other than those specified by manufacturer may result in increased EMISSIONS or declared IMMUNITY, after brief operation. To prevent burns, turn off the ProXenon 350 Surgical Illuminator and allow it to cool for 10 minutes prior to removing lamp module.

Electromagnetic Emissions

The Welch Allyn ProXenon 350 Surgical Illuminator is intended for use in the electromagnetic environment specified below. The customer or user of the Welch Allyn ProXenon 350 Surgical Illuminator should assure that it is used in such an environment.

RF emissions CISPR 11	Group 1	The Welch Allyn ProXenon 350 Surgical Illuminator uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The Welch Allyn ProXenon 350 Surgical Illuminator is suitable for use in all establishments, other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	See above
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	See above

Electromagnetic Immunity

The Welch Allyn ProXenon 350 Surgical Illuminator is intended for use in the electromagnetic environment specified below. The customer or user of the Welch Allyn ProXenon 350 Surgical Illuminator should assure that it is used in such an environment.

Emissions Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment -Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions, and voltage variations on power supply input lines. IEC 61000-4-11	>95% dip in 0.5 cycle 60% dip in 5 cycles 30% dip for 25 cycle >95% dip in 5 seconds	>95% dip in 0.5 cycle 60% dip in 5 cycles 30% dip for 25 cycle >95% dip in 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Welch Allyn ProXenon 350 Surgical Illuminator requires continued operation during power mains interruptions, it is recommended that the Welch Allyn ProXenon 350 Surgical Illuminator be powered from an uninterruptible power supply or battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Electromagnetic Immunity

The Welch Allyn ProXenon 350 Surgical Illuminator is intended for use in the electromagnetic environment specified below. The customer or user of the Welch Allyn

Emissions Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment -Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the Welch Allyn ProXenon 350 Surgical Illuminator, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = (1.17)\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = (1.17)\sqrt{P} \text{ 80 MHz to 800 MHz}$ $d = (2.33)\sqrt{P} \text{ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).}$ Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a , should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: 

ProXenon 350 Surgical Illuminator should assure that it is used in such an environment.

Note 1: At 80 MHz and 800 MHz, the higher frequency applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

^a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Welch Allyn ProXenon 350 Surgical Illuminator is used exceeds the applicable RF compliance level above, the Welch Allyn ProXenon 350 Surgical Illuminator should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Welch Allyn ProXenon 350 Surgical

Illuminator.

^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Welch Allyn ProXenon 350 Surgical Illuminator

The Welch Allyn ProXenon 350 Surgical Illuminator is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The

Rated Max. Output Power of Transmitter (W)	Separation Distance According to Frequency of Transmitter (m)		
	150 kHz to 80 MHz $d = (1.17)\sqrt{P}$	80 MHz to 800 MHz $d = (1.17)\sqrt{P}$	800 MHz to 2.5 GHz $d = (2.33)\sqrt{P}$
0.01	0.117	0.117	0.233
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.70	3.70	7.37
100	11.70	11.70	23.30

customer or user of the Welch Allyn ProXenon 350 Surgical Illuminator can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Welch Allyn ProXenon 350 Surgical Illuminator as recommended below, according to the maximum output power of the communications equipment.

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

REPLACEMENT PARTS

Bubble #	Part Number	Description	Fig. #
1	236706-3125	FUSE	1
2	713407	SPRING, DOOR	3
3	90209	LAMP	5
4	711760	TURRET COVER	8
5	713433	TURRET KNOB	8
6	713434	TURRET HOUSING	10
7	713406	DISPLAY LOGIC BOARD	15
8	713432	CONTROL LOGIC BOARD ASSEMBLY	16
9	713430	HOT MIRROR ASSEMBLY	17
10	713427	INTERLOCK BOARD ASSEMBLY	23
11	713403	LINE FILTER ASSEMBLY	29
12	713404	FAN ASSEMBLY	25
13	713426	POWER SUPPLY	26
14	713428	PLUNGER BALL	7
15	713424	FRONT PANEL	8
16	713425	MEMBRANE	8
17	714483	AC SWITCH CAP	8
18	713431	AC SWITCH OVERLAY	8
19	714481	PAN HEAD , SLOTTED 6-32 X 3/8 LG NYLON (1)	18
20	714484	NYLON STANDOFF, 6-32 X 3/8 LG X 1/4 HEX (1)	20
	713429	TOP COVER	
	714772	WIRE HARNESS ASSY <ul style="list-style-type: none"> • TURRET INTERLOCK HARNESS • POWER SUPPLY INTERLOCK HARNESS • SHUTTER HARNESS • AC HARNESS • 12 PINS INTERFACE HARNESS 	
	713408	PLASTIC RIVET (1)	
	713409	BLACK FOOT, PLASTIC (1)	

Final Inspection

Verify the following:

1. Turret rotation check
2. AC Switch LED lights when the button is pressed
3. Both fans operate properly
4. Lamp ON/OFF functionality & LED indicator (with and without fiber installed)
5. Light Output (New Lamp): 1800 Lumens minimum initial input through 3mm glass rod at full rated power
6. No light leakage when the shutter is at close position (0%)
7. Display goes from 0-100% and 100-0% with 10% increments and the light output is changing accordingly
8. Lamp door interlock is functioning properly
9. Ground continuity check (input to equipment stud)
10. Hi-pot test (input-chassis 1500 VAC)
11. Leakage test at 120 VAC, 60 Hz (less than 300 μ A)

PLEASE NOTE: Light output intensity is best evaluated by comparing light output with a known good light source, headlight and fiber.